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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Chemists and the State

WHEN Major A. G. Church, M.P., at the annual dinner of the Chemical Engineering Group, supported Sir Richard Gregory's suggestion that scientists should take more interest in political life and improve the attitude of Parliament towards industrial and scientific enterprise, there were general expressions of assent. But when he warned them, in entering politics, to avoid "party" politics, he was restricting them to a very small area indeed. For outside the "parties" how much is there of politics left? And how, indeed, unless he be a person of unusual wealth or influence, is the candidate who repudiates "party" ever to get into the House or even adopted as a candidate? But perhaps Major Church did not intend to be taken too literally in this, any more than in his suggestion that science destroys industry. What it does is not to destroy but to supersede older forms of industry by the discovery of quicker, shorter, cheaper routes to the same end, or by the substitution of synthetic for natural products. Experience generally goes to confirm what Professor Morgan said—that scientific discoveries, when applied to industry, ultimately increase the number of employed and bring luxuries within the reach of everybody. Those who heard Dr. Little's presidential address in Manchester will recall the illustrations and the statistics that he gave in support of this view.

These points all arose, in the course of the after-dinner speaking, out of a particularly stimulating address on "Science in Industry" by Sir Richard Gregory. It was something of an experiment to introduce a speech of this type, in addition to the usual toasts, but it proved a complete success. A hackneyed subject, discussed on innumerable occasions, it might have proved a really depressing affair, but Sir Richard Gregory's handling of the subject was so fresh, so full of knowledge and point, and contained so many sound suggestions, that the speech added very materially to the success of the evening. One point that Sir Richard brought home most effectively by a long series of illustrations, was the fact that nearly all the big discoveries were originally laboratory discoveries without any thought of ultimate industrial application. On this he based his plea for closer co-operation between the pure scientist who discovers new facts in the course of his research and the engineering-commercial mind that sees in these pure discoveries possibilities of industrial application and development. Another point that was emphasised was that these discoveries are being made by scientists and developed by commercial men without practically any aid from the Government. All, apparently, that the Government desired was to derive some advantage in the way of taxation. Here came in the familiar plea that there should be in Parliament a group of definitely scientific people who could advise the Government when such matters came up for consideration.

The annual meeting of the Group was a more or less formal affair, as annual meetings of thoroughly well managed bodies often are. The membership still shows a slight increase, the finances are in a satisfactory state, and the programme of work for the coming year indicates abundant vitality. Now that chemical engineering is so much talked of as perhaps the most important element in chemical industrial developments, it must be some satisfaction to the Chemical Engineering Group to remember those moderately far-off days when people smiled at the mention of the term "chemical engineer" and treated it more or less as the latest fad. The original members of the Group, when they recall those days, have reason to feel gratified at the rapid change they have effected and the astonishing progress they have set in operation.

Chemical Traders and Customs

IN his speech to the chemical and dyestuff traders at the annual meeting on Wednesday, the retiring chairman (Mr. A. F. Butler) was able to record one matter in which real progress has been made, namely in the relations between the association and H.M. Customs. The collection of key industry duties has been rather a troublesome business, resulting in frequent disputes between chemical importers and the Customs authori-

ties. At length, it is satisfactory to hear, both parties have come to understand each other, and both will be the gainers by this better understanding. This was one among other examples that Mr. Butler was able to quote of the good results of trade organisation. It is fairly obvious, as he also pointed out, that if a chemical traders' organisation was required in the past it may be required even more in the future, if imports are subjected to still further restrictions and regulations. Even among traders there may be some differences of opinion on tariffs and licensing systems, but there will be none on the necessity of claiming and insisting that in the administration of such restrictions the trading community should be fairly and courteously dealt with. The Association may congratulate itself on the improved relations that have been created through its persistent efforts.

Educating Chemical Workers

AMONG the communications that have reached us on the criticism we have recently published on certain statements about chemical profits is one suggesting that our comments should be broadcast among chemical works for the information of the men. It seems to us that chemical employers might well consider some scheme for putting the simple facts about business organisation before their workpeople and for meeting the wilder kind of accusations against the management. Unless corrected, such statements are apt by degrees to sink into the workers' minds as undisputed truths, whereas a half-hour's friendly conference—with, if possible, the author of the charges invited to be present—would dispose of the case. It would also generally dispose of the author himself, who could, by a little judicious cross-examination before the workers, be led completely out of his depth and effectually exposed. Fortunately, in the chemical industry the workers really understand something about the operations and represent a good level of intelligence. It has been represented that we have referred to chemical workers as "brainless dolts." The term "brainless dolts" has never been applied by THE CHEMICAL AGE to any class of workers, chemical or other. It has only appeared in our columns once, and it was used then by a chemical trade union organiser.

The Automatic Machine Case

A DIVISIONAL Court has quashed the conviction of a chemist who used an automatic machine for the sale of goods containing poison. The case was taken up originally by the Pharmaceutical Society under Section 3 (1) of the Poisons and Pharmacy Act, 1908, and in view of the importance of the point at issue possibly it may go on appeal to the highest authority. The county court judge apparently relied on the reference to the chemist's business being "*bona fide* conducted by himself or some other duly registered pharmaceutical chemist or chemist and druggist," and held that sale by an automatic machine outside the shop and during hours when the shop was shut did not amount to the personal conduct of the business required by the section. The Divisional Court took a much wider view of the meaning of the section, holding that it merely meant there should be a responsible qualified person in general charge of the business. Although allowing the appeal, the Court agreed that a system which allowed poisonous substances to be sold by automatic machines was not satisfactory, and suggested that it might be brought under legislative control.

Books Received

ORGANIC CHEMISTRY FOR MEDICAL, INTERMEDIATE SCIENCE AND PHARMACEUTICAL STUDENTS. By A. Killen Macbeth. London: Longmans Green and Co. Pp. 296. 6s. 6d.

THE ROADWAY GOODS TRANSPORT GUIDE. London: Roadway Time Tables, Bookings and Publications, Ltd. Pp. 978. 25s.

NATIONAL PHYSICAL LABORATORY. REPORT FOR THE YEAR 1930. London: H.M. Stationery Office. Pp. 296. 12s. 6d.

The Calendar

May 4	Society of Chemical Industry (London Section): "The Chemical Constitution of Coal." Professor W. A. Bone. 8 p.m.	Burlington House, Piccadilly, London.
6	Institute of Metals: Annual May Lecture—"The Progress of Power Production." W. B. Woodhouse. 8 p.m.	Institution of Mechanical Engineers, London.
6	Society of Public Analysts. 8 p.m.	Burlington House, London.
7–8	Iron and Steel Institute: Annual Meeting.	Institution of Civil Engineers, London.
7	Iron and Steel Institute: Annual Dinner. 7 p.m.	Connaught Rooms, London.
7	Chemical Society: "Orientation Effects in the Diphenyl Series. Part IX. The Nitration of 4-chloro-4¹-fluoro— and 4-bromo-4¹-fluorodiphenyl." Miss E. E. J. Marler and E. E. Turner. 8 p.m.	Burlington House, London.
12	Institution of Petroleum Technologists. 5.30 p.m.	John Street, Adelphi, London.
13	Electroplaters' and Depositors' Technical Society: "Problems in Chromium Plating and High Current Density Nickel Plating." N. R. Laban. 8.15 p.m.	Northampton Polytechnic Institute, London.
14	Optical Society: Annual General Meeting. 7.30 p.m.	Imperial College of Science, London.
15	Institute of Chemistry (Belfast Section): Annual General Meeting. 7.30 p.m.	Royal Belfast Academical Institution, Belfast.
15	Physical Society. 5 p.m.	Imperial College of Science, London.
20	Society of Glass Technology. 2 p.m.	London.
21	Chemical Society. 8 p.m.	Burlington House, London.
22	Society of Chemical Industry (Newcastle Section): Address by Dr. J. T. Dunn. 7.30 p.m.	Armstrong College, Newcastle-on-Tyne.
June 4	Chemical Society. 8 p.m.	Burlington House, London.
5	Physical Society. 5 p.m.	Imperial College of Science, London.
10	Faraday Society: Annual General Meeting: "A Laboratory Study of the Atmospheric Corrosion of Metals." "An Air Thermostat for Quantitative Laboratory Work." Dr. W. H. J. Vernon. "The Quantitative Humidification of Air in Laboratory Experiments." Dr. W. H. J. Vernon and L. Whitby. 8.15 p.m.	Burlington House, London.
10	Electroplaters' and Depositors' Technical Society: "Continental and American Practice in Nickel Deposition." W. T. Griffiths. 8.15 p.m.	Northampton Polytechnic Institute, London.
11	Optical Society. 7.30 p.m.	Imperial College of Science, London.

British Chemical and Dyestuffs Traders

Luncheon and Annual General Meeting

THE eighth annual luncheon of the British Chemical and Dyestuffs Traders' Association was held at the Comedy Restaurant, London, W.1, on Wednesday, April 29, Mr. A. F. Butler presiding. As on former occasions, it was a distinctly happy gathering, which paid ample tribute to the high esteem in which the Association is held by its members. Among the guests present were Mr. Homer S. Fox (United States Assistant Commercial Attaché, London), Mr. Roger Townsend (United States Trade Commissioner, London), Mr. W. J. U. Woolcock, and Mr. J. Davidson Pratt (General Manager of the Association of British Chemical Manufacturers).

In a short speech the president, Mr. Victor Blagden, referred to the resignation of Mr. O. F. C. Bromfield, who has been secretary of the association for over twelve years and will now be succeeded by Mr. F. G. Paige. On behalf of the Association, he said, he had great pleasure in presenting Mr. Bromfield with a silver cigarette case and cheque in appreciation of the services which had been rendered to the Association during those twelve years. Mr. Bromfield replied in suitable terms, making special reference to the necessity for keeping the Association in existence, and to the happy relationship which had existed between him and the past and present secretaries of the Association of British Chemical Manufacturers.

At the annual general meeting which followed the luncheon the following were elected to the various offices of the Association for the forthcoming year :—President, Mr. Victor Blagden ; vice-presidents, Mr. Fredk. T. T. Reynolds, Mr. A. F. Butler ; chairman, Mr. S. J. C. Mason ; vice-chairman, Mr. Harold Gilliat (Leeds) ; hon. treasurer, Mr. H. A. Berens ; hon. auditor, Mr. A. Hughes ; executive council, Mr. Wm. Mann (Produce Merchants, Ltd., London), Mr. W. Beckley (Chas. Zimmermann and Co. (Chemicals), Ltd. London).

Chairman's Annual Review

The Chairman (Mr. A. F. Butler), in the annual report, expressed his satisfaction that during the difficult times they had experienced in the past two years, there had been no material fall in membership, while this year there was a slight increase. The routine side of their activities continued. Week in and week out they rendered assistance and furnished information to members in regard to the various trade restrictions and on many other subjects. The steady call from members for the assistance of the Association was, in itself, sufficient proof of the Association's necessity and usefulness.

Turning to the Association's work in voicing the collective opinion of the trade, and the incessant campaign to protect the mutual interests of the merchants against undue and often quite unnecessary interference, he said that matters connected with the Key Industry Duties remained one of their chief activities. In contesting rulings of Government Departments, in resisting attempts made by other interests to restrict the activities of the merchants and in demanding and obtaining fair and reasonable treatment for members, the Association continued to justify the confidence of the trade. Had there been no traders' organisation during the past nine years, not only would they have had to contend with many injustices and obstacles which had been swept away, but such restrictions on trading activities would have been progressively increased and the difficulties of trading immensely accentuated. Quite apart from the merits or demerits of legislation such as the Key Industry Duty and the Dyestuffs Act, their policy was to ensure that, whilst those measures remained, they were interpreted in a fair and impartial manner and operated in such a way as to constitute as little hindrance as possible to the trade of the country. There had been no further movement to extend the scope of the duties to cover a large range of products which they contended were undoubtedly heavy chemicals. At the same time, the Association found it necessary to keep a vigilant watch on this point and, should the necessity arise, would lose no time and spare no effort to offer once more a successful resistance to the levy of import duties on products outside the professed intention of the Safeguarding of Industries Act.

Improved Relations with Customs

The administration of the K.I. duties involved constant negotiation with H.M. Customs. In former years it was not possible to report that they were satisfied, but this year conditions showed material improvement and a better understanding had been arrived at. For a number of years, the views of the authorities and those of their Council had not harmonised, particularly regarding questions of liability to duty and the values on which duty was assessed, but he was glad to report considerable progress in this respect.

One matter deserved special attention. Some three years ago, H.M. Customs introduced Form C. 105, and they intimated to that Department that they considered the form to be lacking in authority and objectionable in its incidence and consequently they had no alternative but to recommend members to ignore it. After protracted negotiations, members of their Association were exempted from the necessity to complete the form. Early last year, the Department reopened negotiations which had resulted in the introduction of a special form available to members. The information called for in this new form was perfectly fair, and quite unobjectionable. Over 7,000 of those forms were already in circulation and supplies could be obtained by any of the members. Not only was the form generally acceptable to members, but it facilitated their customs work. The introduction of this form, the use of which was confined to their members, was perhaps one of their best achievements.

What was, perhaps, even more important was the fact that this happy settlement of a very difficult matter showed that the Department had confidence in and respect for the Association and its members. Those in authority charged with the interpretation and operation of various trade restriction measures, now recognised the distributors, and treated merchants as a body of traders to be respected and worthy of consideration as business men.

The Tariffs Problem

He would like to touch on one subject which was, in his opinion, of the utmost importance, both individually and collectively. The commercial situation in this country, as in the whole world, was a serious one and there was no inconsiderable body of opinion in this country in favour of general tariffs. Whatever might be their personal views on the question of free trade versus protection, it was obvious that in these times of transition, an Association such as theirs was vitally necessary to ensure that the interests of merchants and importers were safeguarded. If the tariffs levied on chemical products were varied or increased, and if they had to face possibly a tariff on dyestuffs as well, the Association would need, and he felt sure would obtain, the unstinted support of the trading community in its campaign to ensure that such tariffs were operated as fairly as possible.

Although, Mr. Butler added, he was retiring from the position of Chairman, his interest in the Association was in no whit abated and he assured his successor of his unqualified support.

Classification of Coals on Charts

A MEETING of the North-Western Section of the Institute of Fuel was held at the Engineers' Club, Manchester, on Tuesday, April 21, when a paper entitled " The Fuel Technologist and the Classification of Coal," was read by Mr. C. A. Seyler, B.Sc., F.I.C., president of the South Wales Institute of Engineers.

The author of the paper stated that his classification of coal was based upon the fact, long ago discovered by Regnault, that there was a close relation between the chemical properties of coal and its elementary composition. When the composition was plotted graphically upon a chart with rectangular co-ordinates representing the carbon and hydrogen, coals were not found distributed at random but fell within certain limits, and formed a band on the diagram in which similar coals were grouped together. This band could be distinguished into three portions. The central one had the normal hydrogen ; that richer in hydrogen contained coals of unusual properties like the cannels and bog-heads, whilst that lower in hydrogen, contained abnormal types such as fusains and weathered coals. The calorific values of coal could be represented on this chart by a series of parallel straight lines, as was shown by Ralston in 1915.

Chemical Engineering Group: Annual Meeting and Dinner

Relations of Science, Industry and Politics

Although the annual meeting of the Chemical Engineering Group was more or less formal, there was plenty of interest in the speeches at the dinner that followed. Sir Richard Gregory's admirable speech on "Science in Industry" was followed by some frank utterances by Major A. G. Church, M.P., and by Professor Morgan, who emphasised the pressing need of funds for the Chemical Abstracts Bureau.

THE annual general meeting and dinner of the Chemical Engineering Group was held at the Waldorf Hotel, London, on Friday, April 24, Mr. George Gray (Chairman of the Group) presiding.

Reports and Election of Officers

The report for the past session recorded a further small increase in the membership, the number of members now being 485. In connection with the forthcoming jubilee celebrations of the Society of Chemical Industry, the Council had accepted an offer by the Group Committee to arrange an exhibition of research and testing apparatus. This exhibition was being organised in conjunction with the research stations and the research organisations, who had entered into the scheme with enthusiasm. The exhibition would be housed at the Central Hall, Westminster, with the exhibition of the British Chemical Plant Manufacturers Association. The Committee also placed on record its appreciation of the services of Mr. Mackie (the assistant secretary) and his staff throughout the year.

The Chairman, moving the adoption of the report, expressed the thanks of the Group to the hon. secretary (Mr. W. F. Darke) for his untiring work during the year. Mr. H. Talbot seconded and the report was adopted. A vote of thanks to Mr. Darke, Mr. Mackie and the staff was unanimously carried.

The accounts for the year showing a small credit balance were presented and adopted on the motion of Mr. W. J. U. Woolcock, seconded by Mr. H. Talbot, a vote of thanks being accorded to Mr. F. A. Greene (hon. treasurer).

There were four vacancies on the general committee and no nominations having been received from members, the committee nominated the following:—Dr. W. Cullen, Mr. D. McDonald, Mr. F. H. Rogers and Mr. E. W. Yeoman, who were declared elected.

The hon. officers were re-elected as follows:—Chairman, Mr. George Gray; hon. secretary, Mr. W. F. Darke; hon. treasurer, Mr. F. A. Greene.

The Annual Dinner

The principal feature of the after-dinner programme was an address by Sir Richard Gregory on "Science and Industry." Those present included Professor G. T. Morgan (President-designate of the Society), Sir Frederic L. Nathan, Sir Robert Robertson, Mr. W. A. S. Calder (President of Institution of Chemical Engineers), Major A. G. Church, M.P., Dr. E. F. Armstrong, Mr. J. Arthur Reavell, Dr. H. J. Bush, Mr. W. J. U. Woolcock, Mr. H. J. Pooley, Dr. W. R. Ormandy, Mr. H. Talbot, Mr. W. F. Darke, Professor J. W. Hinchley, Dr. S. G. Barker, Mr. J. Davidson Pratt, Dr. R. T. Colgate, Mr. E. A. Alliott, Mr. F. A. Greene, Mr. F. H. Rogers, Dr. A. J. V. Underwood, Mr. P. Parrish, Mr. S. J. Tungay, Mr. L. H. Sensicle and Mr. C. Featherstone Hammond.

Apologies were received from Sir H. McGowan (President of the Society), Dr. H. Levinstein, Sir James Lithgow (President of the Federation of British Industries), Sir Arthur Duckham, Sir Frank Smith (Department of Scientific and Industrial Research), the Lord Mayor of Liverpool, and Sir Alexander Gibb.

Science in Industry

Sir Richard Gregory gave an address on "Science in Industry." Although, he said, the inventions of the 18th and early 19th centuries came from the workshop rather than the scientific laboratory, a new era—that of electricity—could be said to have opened a century ago in the work of Davy and Faraday in the laboratory of the Royal Institution. The principle discovered by Faraday that a moving magnet could create a current of electricity led to the construction of a dynamo and was the seed from which the great industry of electrical engineering has grown. Faraday's discovery of induced current, for which at that time no one would have paid him a shilling, had created industries in which hundreds of millions of capital were invested and hundreds of thousands of people were employed. Before the war Germany easily led the world in her exports of electrical machinery and apparatus but now Great Britain was the chief exporting country, her total exports being valued at about £20,000,000. In these days of world-trade depression, also, it was worth while remembering for the credit of science that one of the few industries unaffected by it was the radio industry. There were no unemployed on the register of skilled workmen in the radio trades, which were moreover steadily absorbing unskilled labour. Thus science had brought into existence huge new industries which not only did not displace any labour but created labour for many more people. Unfortunately, added Sir Richard, all the efforts of the scientist seemed to result in taxation by the Government of what followed the work they did. It seemed to be the function of Parliament to assist the industrial progress of the country in that way (laughter).

Industrial Chemistry

Giving further instances of the manner in which enormous industries had been founded upon work originally done in the laboratory, Sir Richard said that industrial chemistry had been revolutionised by the application of electrical methods. For instance, aluminium which was shown as a curiosity in the Paris Exhibition of 1855, and of which the annual production was now more than 200,000 tons, was now manufactured exclusively by electrolysis of bauxite. Metals such as copper and iron, gold, silver and lead were obtained in the highest degree of purity by electrolysis which was based on the laws discovered by Faraday. Another industrial development of a laboratory process was the refining of steel in the electric furnace, whilst yet another was the manufacture of special alloy steels containing small percentages of rare elements which were formerly scarcely known by name outside chemical laboratories, namely, nickel, cobalt, manganese, chromium, tungsten, molybdenum, venadium, titanium, silicon and others. Not a single chemical element had been discovered in an industrial laboratory or works and it was not too much to say that not a single one of them was thought to have any practical value when it was discovered. These seeds from which great industrial plants had been cultivated were given to the world by scientific investigators who scarcely ever derived any financial award or profit from their discoveries.

Several other instances of industrial uses following scientific work in the laboratory, which at the time was thought to have little or no practical value, were mentioned, including the thermos flask, the use of thorium and cerium in the incandescent mantle, the use of tungsten in the electric incandescent lamp, the use of nitrogen or argon in the gas filled electric lamp, the use of neon for illumination purposes for harbours and airways because of the penetrating quality of its light and the discovery of helium.

Scientists and Public Affairs

In the concluding portion of his address Sir Richard dealt with the position of the scientist in relation to public affairs and expressed the view that the time had come for a reconsideration of the whole position of science and industry in national politics. Both scientists and industrialists, if they were to do their duty, would insist upon having more to do with the affairs of the country than they had at the present through Parliament. The whole of the Civil Service, he said, was dominated by the same century old traditions. The Civil Service was established when there was no scientific education of a systematic kind or any systematised industrial knowledge for the benefit of the nation. The Civil Service in those days was of the old traditional country gentleman standard. Now, however, conditions had changed, yet the Civil Service remained the same. The scientific and technical man, when he was called in, was called in as a secondary person to give a sort of night school talk to some statesman who was in authority or some chief secretary who had no idea of what science really meant, but modern technical achievement and scientific thought foreshadowed a new economic structure for

society, in which those with scientific knowledge should exercise a decisive influence upon the major policies of the State as well as upon their administration. That position, however, would not be reached until scientific men played their part as citizens in seeing that they were adequately represented in Parliament.

Does Science Destroy Labour?

Major A. G. Church, M.P., proposing the toast of "The Society of Chemical Industry," dealt first with one or two points mentioned by Sir Richard Gregory. First, he alleged that the work of the scientist had resulted in the destruction of labour, and in response to several cries of "No," said he would give instances. According to the Association of British Chemical Manufacturers, there were a few years ago some six million people in India engaged entirely in producing indigo for the production of dyestuffs, but through the machinations of a group of chemists in direct descent from the illustrious Faraday, who discovered benzene, those six million people had been deprived of their livelihood by about 200 chemists, and but for the discovery of synthetic indigo there would probably now be some nine million people in India engaged in cultivating that particular crop. Another case was in connection with cloves.

About seven years ago he visited the islands of Pemba and Zanzibar off the East Coast of Africa, where at one time the whole of the peasantry were engaged in the production of cloves. It was true that their existence was a precarious one, but by the discovery of vanillin the whole of that industry had gone. What was that but destroying labour? Similarly, he asked what science had done for the cotton industry and the textile industry? It had done its level best to deprive a large number of people of their means of livelihood, but there was little doubt that if the practical politicians in the House of Commons were to pass a law prohibiting the production of cellulose threads, it would be regarded as a reactionary proposal, although no doubt Lancashire would sit up and take notice. The position was that the scientist had created problems for the politician to solve and it was for the scientist to come to the aid of the politician in solving them. It was not correct to say that the Government did not recognise science, because there were the Government Departments presided over by Sir Robert Robertson, Professor Morgan, Sir Frank Smith and other scientific and technical men who, although they could probably obtain much larger salaries if they transferred their abilities to industry, preferred to remain in their positions. At the same time it might improve the emoluments of their successors if they were to do so and make the State realise that it could not always afford to treat such servants with that lack of generosity which seemed to be particularly characteristic of the State when dealing with the scientific heads of departments.

Why Not Protection?

In urging scientific and technical men to take a greater interest in the affairs of the State, Major Church said that the politician was not so contemptuous of science as the scientist was of politics. In asking scientific men, however, to take a greater interest in helping to solve the problems which had to be faced at present he urged them to keep out of party politics and to place before the politicians facts which had not been cooked. It was the duty of the scientific world as a whole to take stock of the present position and to assist in considering how new industries could be developed along the right lines.

A Voice: Protection.

Major Church: Why not? There was not a single politician in Parliament who was not prepared to consider the protection of an industry on its merits—he emphasised those words. The fact, however, must not be overlooked that in asking for the protection of one industry there was risk of considerable damage to other and possibly more important industries, and therefore in any consideration of this matter regard must be had to the industrial life of the community as a whole. In the discussion in the House of Commons on the dyestuffs controversy his point had been that men like Professor Morgan and Sir Robert Robertson had not been consulted by the Government. Another point was that he did not think the Government should be bound by an opinion that had been expressed by the late Lord Moulton ten years ago that a period of ten years ought to see the dyestuffs in this country on a sound foundation. Nobody could tell what was going to happen in that ten years and it was because unforeseen events had happened that he based his claim for a longer period of experimentation, for in that particular case no harm was being done to anybody by such action.

The country had the right to expect, concluded Major Church, that the scientist would try and apply the same habits of thought and mind to the problems of the country as were applied in the laboratory, to assist in finding solutions for the political chaos into which the world as a whole had entered. If the scientists would do that they would quickly convince the people of the country that science had a very definite and real contribution to make to the progress of the world.

Funds for Chemical Abstracts

Professor G. T. Morgan, responding to the toast, said the industry owed Major Church a debt of gratitude for the great moral courage he had shown in dissociating himself for the time being from his political associates in the dyestuffs discussion. On the point made by Major Church, that science was destroying labour, he claimed that eventually science always found work for two people for every one displaced. Speaking of the work of the Society, Professor Morgan said he could not help feeling that it would have been better for chemists and chemical engineers if some of the other societies, such as the Faraday Society, had been formed as groups of the Society of Chemical Industry or some other body, because in that case the difficulties with regard to the professional organisation of which they were justly proud would not exist. Commenting on the financial burden involved in the publication of the chemical abstracts, Professor Morgan said he regarded the provision of funds for this purpose as of more importance even than Chemistry House. At the present time there was a real menace that this work could not be continued unless more ample funds were available and sooner or later something would have to be done to help the Chemical Abstract Bureau to carry on its work in the way it would like to. Finally, he expressed, on behalf of the Society, appreciation of the enthusiastic support and unfailing loyalty which it had always received from the Chemical Engineering Group.

Sir Robert Robertson, responding to the toast, "Our Guests," proposed by Mr. H. Talbot, said it was hardly true to suggest that the State did not take a great deal of interest in science. We had such organisations as the Department of Scientific and Industrial Research, the Chemical Laboratory at Teddington, and the Government Chemical Laboratory, to say nothing of the National Physical Laboratory, which latter was by no means inferior to the Reichsanstalt in Germany and the Bureau of Standards in America. There were also many other directions in which the State was closely interested in scientific work.

Mr. J. Arthur Reavell, proposing the final toast "The Chairman," referred to the work done by Mr. Gray and claimed that the progressive policy adopted by the Group since the beginning had revitalised the Society of Chemical Industry.

The Chairman, in reply, emphasised the point, as illustrating the outlook of chemists, that in none of the speeches had anything been said of our depressed times. The fact was that chemists did not think about them because they knew that if there were difficulties they would be able to get over them.

Acid, Alkali and Salt Industry in Canada

THE Dominion Bureau of Statistics at Ottawa reports that products made for sale in the acids, alkalies and salts industry in 1929 were valued at $28,021,972, as compared with $21,256,286 in 1928. Fifteen plants were in operation: eight in Ontario, three in British Columbia, three in Quebec, and one in Nova Scotia. The production of sulphuric acid amounted to 110,749 tons of 66° Bé. acid of a total value of $1,375,599. Sulphuric acid was made in seven plants, nitric acid in two, hydrochloric acid in two, acetic acid in two, sodium bisulphate in two. Each of the following commodities was made by only one concern: calcium cyanamide, sodium sulphate, sodium carbonate, sodium cyanide, sodium hydroxide, amm. phosphate, sodium hypochlorite, calcium carbide, liquid chlorine, acetylene, acetylene black, hydrofluosilicic acid, butyl acetate, ethyl acetate, paraldehyde, acetaldehyde, croton aldehyde, phosphorus, and phosphoric acid.

Visit to German Universities and Research Institutions

Notes on a Two Weeks' Tour

A PARTY of the Association of University Teachers under the guidance of Dr. Ernst Deissmann (Anglo-German Universities Bureau) left Southampton on April 9 for a two weeks' tour which included the cities and universities of Hamburg, Göttingen, and Berlin. In addition to general information on administration and student life, some special views were obtained of the present state of chemical teaching and research.

At Hamburg

The University of Hamburg, founded in 1919–1921, incorporated several older institutions, among which the Chemical State Institute dates from 1873. This provides the chemical courses for the State examinations, for example, in medicine, and also serves as a Customs, Forensic and General Analytical Laboratory for the City and State of Hamburg. The equipment includes a microscope with electrically heated stage on which the melting points and fractional sublimations of minute crystals isolated in cases of poisoning can be undertaken. Part of the work carried on or supervised by the director, Professor Rabe, is concerned with catalytic reductions by H. Pd or H. Pt. A specimen of synthetic dehydroquinidine was exhibited. The Director of the Phys. Chem. Institute, Professor O. Stern, is carrying out several researches on molecular rays—the deffraction of beams of uncharged molecules by crystal faces, the effect of mutual impact of different kinds of molecules, and of the application of intense magnetic fields to these beams.

The General Hospital at Eppendorf not only provides instruction in the Medical Faculty but is also a centre of research in physiology and biochemistry. Special attention is paid to the methods used in the confirmation of acute hæmorrhage and other problems connected with the distribution and transformations of hemochrome and plant hematenis. The hospital is extremely well provided with apparatus for the determination of metabolism and food values, and on the basis of sueh experiments scientific diets are prepared and charted in large numbers. Completely sealed rooms have been devised by Professor Knipping which can be kept at constant air pressure : low for research into the physiology of aeronautics; high for that of mining, etc., and a room at ordinary pressure, fitted with lighting, heating and ultra-violet sets, is used for producing a great variety of artificial climates.

At Göttingen

The Georgia Augusta University, founded in the eighteenth century by George II, is a university of the older type in the small town of Göttingen (40,000) and also well abreast of modern science. Here is seen in perfection the elasticity of the German system. Separate institutes, large and small, are founded for any specialised subject which can establish a claim. Here a house is converted, there a sumptuous building is erected like the Mathematics Institute provided by the Rockefeller Foundation. The ideal of " freedom of teaching " by specialists with its complement " freedom of learning," or free choice of lectures by students, requires this extensive provision. There are Institutes of General Chemistry (Windaus), Inorganic and Colloidal (Thiessen), Physical (Eucken), Pharmaceutical (Feist), Photochemistry (Coelin), and Metallography (Vogel). The older laboratories were built by Wohler in 1844, enlarged by Vctor Meyer in 1887 and by Wallach in 1898. A specimen of Wohler's original synthetic urea is still exhibited. The Institute of General Chemistry, conducted by Professor Windaus and a large staff of assistants, is also an active centre of research on the preparation of sterols and their irradiation by a magnesium arc. The male and female hormones are also under investigation.

In the Institute of Colloid Chemistry Professor Thiessen exhibits the original ultra microscope of Zsigmondy, also a later type which will pick out particles down to 0·5 μ linear dimensions.

The courses in theoretical and practical physical chemistry in the Institute of Professor Eucken are associated with research, mainly on specific heats and heats of combustion. The latter are determined in oxygen at atmospheric pressure in a special all-metal calorimeter.

At Berlin

Attention in Berlin was largely directed to the Technical University and institutions for national post-graduate research.

The Technische Hochschule prepares hundreds of students for the diplomas in engineering, fuel, mining, etc. In the practical course of physical chemistry we note such exercises as the determination of the water gas equilibrium in an electric furnace with a hot-cold tube, and the preparation of calcium carbide. The higher qualification of Dr. Ing, etc. is given after research. A noteworthy method due to Professor Volmer is the measurement of pressure of vapour escaping into a vacuum and forming a mechancal couple which is balanced by the torsion of a tungsten wire. Professor Jerres has been obtaining data as to the " coking heat " of coal.

The great research institution known as the Kaiser-Wilhelm Gesellschaft largely provides and controls several institutes at Berlin Dahlem. The Institutes of Physical and Electrochemistry administered by Haber, with the co-operation of Freundlich, Ladenburg and Polynyi and the Institute for Chemistry where Hahn and Meitner are specialising in radiochemical problems and Hess in cellulose, are grouped together.

In the Colloid Chemistry Institute some very pretty experiments were shown by Professor Freundlich illustrating thixotropy, the liquefaction of ferric hydroxide and other gels on shaking ; also the colour changes shown by dyes when they are dispersed on the surface of a water-benzene emulsion. In the Institute for Radio-chemistry under Professor Otto Hahn a considerable amount of protoaetinium had been prepared. Radio-active gas is more strongly absorbed by substances in the crystalline than by those in the amorphous state, and this forms a deiicate test of the transformations which occur on drying or hydration.

An apparatus has been designed by which standard quantities of radioactive preparation can be supplied quickly for hospital use. The preparation is enclosed in the lower section of a set of massive metal screwed cylinders. The upper section is drilled with a fine hole, into which is inserted a gold capillary tube packed with charcoal, which absorbs the emanation. Any required length of this tube may be cut off and sealed with a drop of wax.

These notes naturally give only a very partial view even of the lines of investigation which are being followed in physics and chemistry. The pursuit of all branches of knowledge is recognised as a source of national strength, and therefore a patriotic duty. Every effort is made to encourage *individual* workers of originality by the provision of status and equipment, even although the financial provision may appear to our ideas to be somewhat in arrears. E. B. R. P.

National Physical Laboratory

Report for the Year 1930

THE Report of the National Physical Laboratory for 1930 again shows that there is an ever-increasing pressure of work which the Laboratory is called upon to undertake on behalf of manufacturers. This is especially noticeable in the physics department, where the number of tests carried out during 1930 (exclusive of thermometer testing) amounted to 8,913, as compared with 5,688 in 1929, and 5,781 in 1928. Alongside these tests, however, the work of the Laboratory continues in the prosecution of pure research. Some points of special interest, taken from this report, are detailed below.

"Doped" Lubricating Oils

During the past three years an investigation of " doped " lubricating oils has been in progress for the Aeronautical Research Committee. It has been found that the addition of lead ethyl and similar substances to some lubricating oils reduces the coefficient of friction of the oil and raises the seizing temperature. Tests were first made on certain straight mineral oils used in motor cylinders, and during the past year the tests have been continued chiefly with a view to determining what constituent of a mineral oil is affected by the lead ethyl used as a dope. Three samples of oil from an asphaltic base all showed a marked reduction of the minimum friction to be produced by oxidation or by the addition of lead ethyl, but if the oils had been oxidised to the optimum condition, no further reduction could be obtained by the use of

lead ethyl. The addition of lead ethyl to castor oil, on the other hand, leads to an increase in minimum friction and a lowering of the seizing temperature.

TAR PRODUCTS.—The Laboratory has collaborated with the Standardisation of Tar Products Tests Committee in the preparation of specifications for glassware and hydrometers to be used for tests on tar and its products, and in this connection a series of experiments has been made with a view to specifying suitable hydrometers for this purpose, which included the determination of the surface tensions of representative samples of tar and tar distillates.

PAINT PIGMENTS.—In connection with the study of lithopones, undertaken in collaboration with the Paint Research Association, X-ray investigations have been made of barium sulphate, titanium oxide, and various mechanical mixtures and co-precipitated compounds of these components. The co-precipitated compounds (titanium whites) gave X-ray patterns which indicated that these were titanium oxide-barium sulphate mixtures. Examination of these substances subsequent to heat treatment showed that the crystal size of titanium oxide diminished as a result of heating, and that the material became practically amorphous as a result of strong heat treatment. On the other hand the barium sulphate crystals grew in size as a result of heat treatment. In the case of titanium whites, heat treatment resulted in a diminution of grain size, while in the mechanical mixtures a short heating at 700° C. resulted in an increase in grain size, and a much stronger heating at 900° C. was necessary for the production of amorphous material.

Metallurgical Researches

PREPARATION OF PURE METALS.—In addition to work on antimony, bismuth and zinc, attention has also been given to the preparation of pure iron, as a material for the investigation of alloys, and for purposes of research on corrosion at the Chemical Research Laboratory.

CADMIUM.—Work on cadmium has now been completed and a report on the properties of this metal has been submitted to the Minor Metals Research Committee.

TITANIUM.—Some further work has been done on the metallurgical uses of titanium tetrachloride, and efforts have been made to utilise the passage of the vapour of this compound through molten metals other than aluminium for the purpose of forming titanium alloys. In the case of magnesium, in particular, this has not proved successful owing to the formation of a very infusible magnesium-titanium compound.

METALLURGICAL ANALYSIS.—In connection with the supply of a non-corroding steel for the second heightening of the Aswan Dam, it became necessary to examine the methods for the analysis of high-nickel, high-chromium, rust resisting steels. Details of methods which it was proposed to use were exchanged with the makers of the steel in question, with the result that the methods proposed by the Laboratory have been adopted by the steel makers. The methods employed are briefly as follows: The estimation of carbon with separation by means of copper chloride solution and subsequent combustion of the residue has been adopted. Direct combustion with the addition of a small quantity of tin to the drillings has also been found to be reliable, after a long series of tests. For the estimation of sulphur a gravimetric method has been used as the evolution method gives low values, possibly because the attack of the acid on this steel is very slow during the solution of the sample. Manganese is estimated by a modified persulphate-bismuthate method, the managanese being first precipitated with ammonium persulphate in the usual way. The precipitate is filtered on a sintered glass or asbestos filter and dissolved with a few drops of sulphurous acid solution. Nitric acid (sp. gr. 1·2) is then added, the excess of sulphur dioxide is boiled off, and the determination completed by the sodium bismuthate method in the usual manner.

Vegetable Oil Industry in India

THE Commerce and Industries Department of the Hyderabad Government has issued a Report on the Vegetable Oil Industry of the Hyderabad State (Bulletin No. 1, New Series). This report contains a detailed survey of the oil-seed and oil pressing industry in Hyderabad, together with recommendations for its development.

Mr. Snowden's Last Budget?

Exploiting Capital as Current Revenue

MR. SNOWDEN is far too clever to involve himself in the financial crisis which, by his Budget, he has arranged for twelve months' time. We have become accustomed to makeshift finance, to temporary expedients, to tiding over, especially in the financial achievements of Mr. Churchill. But never before have we been faced with so deliberate a confession of bankruptcy and helplessness as Mr. Snowden presented on Monday. There is not a single ray of hope in the present Budget for those who look beyond the convenience of the moment. It is, of course, nice to feel that there is, except for petrol, no extra taxation, at all events for a brief space. But the negative relief which the business man may experience in this way will be more than balanced by the certain knowledge of greater trouble to come.

Considering Mr. Snowden's scheme in principle or in detail, it is equally alarming. He has the courage to assure us, in face of the falsification of every such assurance for years past, that trade will improve and that revenues will expand. He bases this absurd optimism on vague references to "world conditions." It must require even more courage for a Socialist Chancellor to hold out hope of economies when he knows that the whole feeling of those who support him is for more and more expenditure, but he must have deliberately planned to make things impossible for the next Chancellor by assuming expanding revenues. Taxes payable on January 1, 1932, cannot approach those which have just gone into the Exchequer. Knowing that Mr. Snowden is no fool at the game of national finance, it is therefore obvious that he has abandoned all hope of responsibility for next year's Budget, and this is perhaps the only bright spot in the situation.

As usual, the interest in the Budget lies not in those points which are made in the House of Commons, but in the more important matters which do not seem to interest the modern legislator. Out of a total of £800,000,000 regarded as current revenue, no less than £155,000,000 is on the face of it capital. The dissipation of capital as income goes a good deal further than this, but the following figures are beyond dispute. We are collecting ninety millions of death duties; the twenty millions from the Dollar Exchange Reserve is, of course, capital; we must borrow from the Consolidated Fund at least thirty-five million of unemployment benefit; and we spend fifteen months' income in twelve months, thus using up another ten millions of our capital resources.

There remains to be mentioned the possibility of indirect taxation, such as tariffs, of which the Chancellor, as was expected, declined to take advantage. Two observations may be made on this great question before the politicians and the popular Press submit it to all the heat of vulgar tariff controversy. In so far as a revenue tariff might have offered some encouragement to our manufacturers, its rejection by Mr. Snowden is to be regretted. On the other hand, the proceeds of a revenue tariff in the hands of a Socialist Government would undoubtedly be used for further extensions in public expenditure. It is of the first importance that new revenues should only be applied to the relief of old burdens, and there is therefore some satisfaction to be derived from Mr. Snowden's determination to have nothing to do with any sort of tariff.

Having regard to the opinion or prejudice of the benches behind him, Mr. Snowden has been forced to leave the dole at a rate which in view of the present price level is 50 per cent. more than was ever intended, while also leaving the recipients of the dole with cheaper commodities on which to spend it. This is an injustice which somebody else will remove.

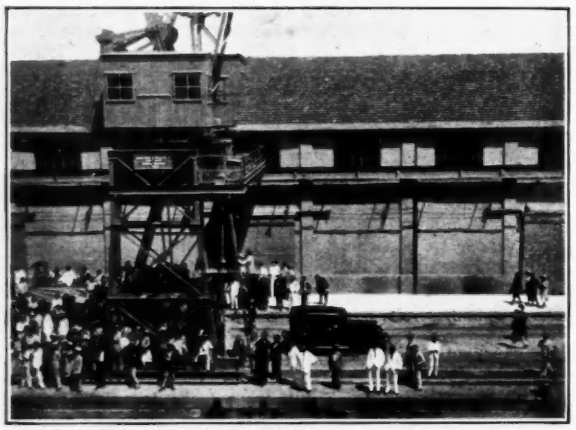
We need not waste our space on the hoary subject of the land, because before the valuations can be made wiser counsel will prevail. The land still provides us with glaring injustices in a few cases of big urban owners, but land as a whole has long ceased to be an asset. Legislation has made it a liability, and Mr. Lloyd George found out, and Mr. Snowden ought to know, that nothing further is to be got out of it. All that the Chancellor has done in connection with land is to foist upon us another big extension of the bureaucracy.

Except, therefore, that we get nine months' respite before going to our bankers for further overdrafts, the Budget has no relieving feature about it.

The Prince Returns from South America

S.S. "*Arlanza*," April 27, 1931.

THE reports from Buenos Aires on the success of the British Exhibition, which closed to-day, are fully confirmed by the directors of various companies returning home on the *Arlanza*. The attendance of over 1,500,000 has created a record in the history of exhibitions, as the population of the city barely exceeds 2,000,000. The total is very much larger than was anticipated and has given the utmost satisfaction to the organisers. During the past six weeks an enormous public



THE PRINCE AT PERNAMBUCO: ILLUSTRATION SHOWS ONE OF 12 DOCK CRANES RECENTLY ERECTED BY BABCOCK & WILCOX, LTD.

has become acquainted with British enterprise at first hand and with the wide range of goods exported to South America. From the publicity standpoint the exhibition has proved immensely worth while, and apart from its value to individual firms, it has shown that our exporters are very far from being disheartened by temporary depression. Sir Herbert Gibson put the matter in a sentence when he said that, just at a time when the whole world is suffering, Great Britain has given a practical lead towards a revival of trade. There is no doubt at all that business with Argentina will improve, provided that the exhibition is followed up vigorously while it is still fresh in the public mind. This conclusion applies with equal force to other parts of South America, where the Royal tour afforded unique assistance to British commercial enterprise.

Meetings to be Held in the Midlands

During the voyage home the Prince of Wales has held informal discussions with some of the business men on board as to the best methods of continuing the work begun at Buenos Aires. His view that advertising is of the first importance for developing our export trade has been stressed in several speeches, and in this connection the plans for publishing *Industria Britanica* were put before him. Various arrangements are being made to stimulate interest in South America among chambers of commerce throughout the country, and it is announced that on May 11 the Prince will himself address some meetings to be held in Birmingham and Manchester with this object. Several trade associations are pooling their plans for future action, following the lead given by the Sheffield Industrial Mission. It is expected that sales campaigns will be launched both on a joint basis and by individual firms, whose representatives are now returning from the Exhibition.

My tour on behalf of THE CHEMICAL AGE has been mainly concerned with general questions, but I am pleased to find that the practical proposals made in this journal are confirmed by the Sheffield report. Special emphasis is laid on the fact that "it costs money for several years to put an unknown brand on the market." The only way to restore the position of our export trade is by decisive action, and the time has come to make a bold bid for new business. It is useless to approach the matter in a half-hearted way. The smallest grocer wanting to set up a branch in the next village realises that he must risk an outlay before the new shop can be opened. This simple truth applies with even greater force to foreign markets.

Another factor mentioned in the report is the heavy customs duties charged on catalogues and advertising matter in most South American countries. The Sheffield Mission found that acceptance of such material is often refused by importers on this account, and as an example they mention a railway catalogue on which a duty of no less than 33s. was asked. The publication of *Industria Britanica* will help to solve this problem for manufacturers, since recognised journals sent by mail are not subject to duties. It will, therefore, provide a means of advertising in these markets without this additional charge, which in many cases would be prohibitive. The matter is of obvious importance in planning sales campaigns for South America, where the new journal will render essential service in the development of British trade.

Optimism as to the future can be stressed with the utmost confidence. If our industries were already fully represented and were using intensive propaganda, there would be cause to doubt the position. As it is, these factors are still the exception rather than the rule, and in many lines where a good demand exists we have recently allowed our competitors a clear field. The war accounted for much of this neglect, but now the Exhibition has given British industry a new start in South America. It remains for as many firms as possible to act while the position is so favourable, and to share in the prosperous future which these enormous markets have to offer.

Chemical Matters in Parliament

International Hydrogenation Patents

IN the House of Commons on Monday, April 27, Mr. Batey (Lab., Spennymoor) asked the Lord Privy Seal if he could state whether the International Hydrogenation Patents Co. had been registered for the extraction of fuel oil from coal, and whether it was operating in any part of this country; and was he aware that the names of the directors of this company were the names of foreign gentlemen.

Mr. Shinwell (Secretary for Mines), who replied, said that he understood that the information which had appeared in the Press concerning the formation of the International Hydrogenation Patents Co. was substantially correct. The company had not been registered in this country, but had its headquarters on the Continent, and, as it was to be expected with a company of this kind, its directorate was international in character. Imperial Chemical Industries, Ltd., which was principally interested in the patent rights in this country, was a party to the arrangement, and was represented on the directorate by Lt.-Col. G. P. Pollitt, D.S.O.

Unemployment in Chemical Trades

ACCORDING to the *Ministry of Labour Gazette* for April, total unemployment in the chemical trades (exclusive of paint, varnish, red and white lead, oil, glue, soap, ink and match manufactures), amounted to 18,087 persons, of which 1,854 were temporarily unemployed. In the case of paint, varnish, red and white lead the total amounted to 2,662 persons, 969 being temporarily unemployed; for oil, glue, soap, ink and match manufactures the figures were 8,712 and 2,441 respectively. These figures relate only to persons falling within the scope of the Unemployment Insurance Acts, for which the estimated totals are 103,610, 19,150, and 76,390 respectively, considered in the three groupings specified above.

Directory of Paper Makers

THE 1931 issue of the *Directory of Paper Makers of Great Britain and Ireland*, published at the office of our contemporary *The Paper Makers' Monthly Journal*, 47, St. Mary Axe, London, E.C.3 (price 5s. 6d., post free), has been authentically revised and brought up to date. It is noticed that many changes have taken place, and that there are over 660 additions to the list of water marks and trade names, which is an important feature, as in previous issues.

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Pulverised Fuel Firing

A Striking "Lancashire" Boiler Plant

THE next stage in fuel technology is the application of pulverised fuel firing to "Lancashire" and other internally fired cylindical boilers, and great interest attaches therefore to the paper read by Mr. H. J. Hill before the Institution of Mining Engineers. This describes in detail a battery of eight standard "Lancashire" boilers, 30 ft. by 8 ft., that have been in successful operation for many months at the Craghead Colliery of the Holmside and South Moor Colliery Co., Ltd., Durham. Superheaters are installed but no economisers, and cold feed water is used, while the boilers are fired with "Resolutor" unit pulverisers burning a total of about 100 tons of purely refuse coal per day, containing 30–50 per cent. ash. The equipment has been supplied by Clarke, Chapman and Co., Ltd., Gateshead-on-Tyne, and consists of four unit pulverisers with 16 "Woodeson" turbulent burners and all the necessary pipe connections and accessories, one standard pulveriser of 30 cwt. of coal per hour capacity firing two boilers. The refuse coal used is composed of belt pickings and small material from the coal cutters.

One important feature is that the "Woodeson" burners are fixed direct to the boiler furnace tubes, without any troublesome brickwork chamber or "Dutch oven" arrangement. The flame is completed in about 6 ft., and in this case the ash does not become molten because the melting point, about 2,610° F., is unusually high. Accordingly all the accumulated fine ash is blown out at intervals to a dust collector chamber at the bottom of the chimney, having a series of baffles and a final water spray curtain, and here 60–70 tons of ash at a time are often taken out.

British Oxygen Co.

THE forty-fifth ordinary general meeting of the British Oxygen Co., Ltd., was held at the Great Eastern Hotel, Liverpool Street, London, on Tuesday, April 28, Mr. K. S. Murray (chairman and managing director of the company), presiding.

In the course of his speech, the chairman said that the company's business would have benefited greatly by some measure of protection against the importation of finished foreign products, as all the competition in oxygen production with which they had been confronted was of foreign inspiration and conducted with foreign-made plant, while the only serious competition met with in the manufacture and sale of apparatus for utilizing the company's gas products was in similar appliances made in Germany and sold here at cut prices.

Competition with foreign plants operating for the production and supply of oxygen was, however, an even more serious matter. With competitors scrambling for oxygen business at a time when the normal demand had diminished and when buyers were pressing remorselessly for reductions in price, it was not always an easy matter to maintain economic rates. Prices which yielded a satisfactory profit on the larger output of oxygen last year were hard to maintain under existing conditions, and unfortunately they had found that even reduced prices did not appear to stimulate the demand for oxygen in any of its established industrial outlets. Meanwhile, however, they were unceasing in their efforts to develop new outlets for the gas, and in several of these directions the prospects were encouraging.

Referring to the company's fusion with Allen-Liversidge, Ltd., he could at this stage only say that so far nothing had occurred to raise any doubt in his mind as to the wisdom of that step. Thanks to the hearty co-operation of their new colleagues on the board, the co-ordination of the two businesses was moving swifter than he had anticipated and already they had been able to effect important economies.

New Oil Refinery in Germany

THE Preussische Bergwerks-Hütten-A.-G. intends to build a new petroleum refinery jointly with the Elwerath Mining Co., operating near Hanover. It is to have a capacity of 70,000 to 80,000 tons. The enterprise is significant of the hopes which are now held of permanent oil extraction in Hanover. The new undertaking is to be run by a specially formed mining company, which in turn will be controlled by the Preussische Bergwerks-und Hütten-A.-G.

Law as to Automatic Machines

Chemist's Successful Appeal

MR. JUSTICE TALBOT (sitting in a divisional court with Mr. Justice Finlay) in the King's Bench Division on Friday, April 24, heard the appeal of Mr. H. R. Watkinson, a chemist and druggist, Lordship Lane, London, against a decision of the county court judge at Wood Green in fining the appellant £5 under section 3 (1) of the Poisons and Pharmacy Act 1908, in alleged contravention of which he placed an automatic machine outside his shop for the sale of ammoniated tincture of quinine, also bottles of Lysol. The respondents were the Pharmaceutical Society of Great Britain.

His Lordship said that in allowing the appeal he did so with great reluctance. The appellant's practice of setting up an automatic machine outside his shop was now quite a common thing. He considered it to be most dangerous for anybody by merely putting 6d. in a machine to be able to obtain a bottle of Lysol, for it was a most dangerous poison. He did not go beyond the province of the court in saying that the Society should seriously consider the question whether this mode of retailing poisons or medicines should not be controlled by legislation. He did not, however, think that the section referred to was in any way directed to the manner in which the business should be conducted. For instance, a person, who conducted a business had necessarily to leave at certain times, and must necessarily, if it was a place of any size, leave, to a great extent, the actual manipulation and conduct of the business to others, who were in subordination to him. The object of the section was tolerably plain, viz., to secure at every place, where a chemist's business was carried on, that there should be a qualified person. The section secured that a chemist's shop should have a responsible hand, but it did not admit of any definition of the personally conducted machine.

Mr. Justice Finlay said he concurred, although he was likewise sympathetic that legislation was desirable.

Leave to appeal was granted.

Roadway Goods Transport Guide

THE first edition of *The Roadway Goods Transport Guide* (25s.), published under the auspices of the Commercial Motor Users Association by Roadway Time Tables, Bookings and Publications, Ltd., is a volume of 978 large quarto pages, designed to form a vital link between the works or premises of any producer, manufacturer, or trader, and the available and suitable empty road vehicle. Regular services of goods vehicles are shown by means of a comprehensive index. This discloses the fact that from 1,380 principal towns and centres in Great Britain no fewer than 19,092 services connect with 10,866 other places. To and from London alone there are 2,460 services, which serve directly 1,050 towns in Great Britain. In Ireland, 200 chief towns and centres are linked by 800 services touching 680 other places. Daily, weekly and other regular services in any part of the British Isles can thus be quickly ascertained. This exhaustive and analytical list goes far to enable everyone who has transport to give out to make contact quickly with a number of firms able to handle any particular job. The size of the volume indicates the enormous development of road transport in recent years.

British Trade in Australia

THE Department of Overseas Trade announce that Mr. R. W. Dalton, H.M. Senior Trade Commissioner in Australia, will shortly be in London on an official visit. He will be available at the offices of the Department during the period May 18–30 to interview manufacturers and merchants interested in the export of British goods to Australia. He will also eventually visit a number of industrial centres in the Provinces. Firms desiring interviews with Mr. Dalton in London, or information regarding his arrangements to visit the provincial centres, should apply to the Comptroller-General, Department of Overseas Trade, 35, Old Queen Street, London, S.W.1, quoting ref. 1452/1931.

From Week to Week

OVER 1,000,000 pounds of formic acid were imported into the Dutch East Indies during the first 11 months of 1930. This represented a decrease of 10 per cent. compared with 1929 import figures for a similar period. Imports of formic acid were entirely from European countries.

RECENT WILLS include :—Mr. Thomas Harris, of Bowdon, Cheshire, chairman of Harris, Hart and Co., Ltd., chemical manufacturers, Blackley, Manchester, £26,792 (net personalty £25,417).—Mr. George Parker, of East Cliff Mansions, Bournemouth, late of Liverpool, chemical broker, £72,657.

GREAT Britain and Canada have accepted the League of Nations invitation to attend an international conference on the limitation of the manufacture of narcotic drugs, which is to open on May 27. Drugs to be discussed at the conference include prepared opium, cocaine, morphine, and heroin.

THE Department of Overseas Trade notifies that Mr. F. L. A. Gotz, general manager of the New Zealand Reparation Estates in Western Samoa, has been appointed honorary Imperial trade correspondent in Samoa. Communications intended for the Imperial trade correspondent should be addressed to Mr. F. L. A. Gotz, General Manager, New Zealand Reparation Estates, Apia, Samoa.

A DISASTROUS explosion destroyed one of the works of the Saccharine Factory Co., at Magdeburg, Germany, on Tuesday, April 28. This company is the oldest and largest of the German saccharine manufacturers. The accident took place in a heavy revolving drum in which chemicals were being mixed, the flame from the explosion setting fire to the building, which contained large quantities of other inflammable chemicals. The number of deaths reported is 12.

MEMORANDUMS on methods of trading and appointment of agents in Hayti, Uruguay, and Guatemala are being circulated by the Department of Overseas Trade to firms whose names are entered on its special register. Copies of these memorandums and particulars of the Special Register Service may be obtained on application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1, quoting the respective references C.X. 3,509, 3,515 and 3,576.

ACCORDING to the United States Trade Commissioner in Berlin, the chemical industry proper in Germany operates 3,000 plants and employs about 32,000 persons. This estimate does not include between 5,000 and 6,000 units of household dimensions. The Union for the Promotion of Germany's Chemical Interests estimates that Germany in 1927 produced 16 per cent. of the world's chemical output, and exported nearly 30 per cent. of the world total for 1929.

COURTAULDS, LTD., rayon manufacturers, Coventry, decided to put into operation, as from Wednesday night, April 29, a reduction in the wages of men and women spinners in their employ. Four to five thousand workers are concerned, and the reduction amounts to 2d. an hour. The firm explains that it has at last been reluctantly compelled to take this step to meet the fierce competition to which it has been subjected for some time past owing to the cheap foreign productions coming into this country.

THE Nederlandsche Koloniale Petroleum Maatschappij has erected a plant in Palembang, Dutch East Indies, for the production of sulphuric acid for its own use. The plant has been designed for continuous operation, to avoid corrosion of equipment during idle periods. A surplus production of 15 metric tons a day is expected, and it is understood that markets will be sought in the Far East. In 1929 the imports of sulphuric acid into Java were 7,592 metric tons, including the Koloniale requirements.

A DEPUTATION from the Sheffield branch of the Pharmaceutical Society of Great Britain met Mr. Cecil Wilson, Mr. P. C. Hoffman, Mr. G. Lathan and Mr. Malcolm MacDonald, at the House of Commons on Tuesday, April 28, to present a case for the further amendment of the Pharmacy and Poisons Bill. This Bill, which has still to pass the Commons, provides for registration of pharmacists and licensing by local authorities of any other shopkeepers who sell poisons. The deputation thought that *bona fide* traders in agricultural or horticultural equipment should be the only persons, besides qualified chemists, who should be legally permitted to sell weed killer and similar substances.

THE thirteenth Exposition of Chemical Industries will be held at the Grand Central Palace in New York next week.

MR. JOHN A. AGNEW, who is a director of Chemical and Metallurgical Corporation, has joined the board of Rhodesian Selection Trust, Ltd.

SIR HAROLD CARPENTER, M.A., Ph.D., F.R.S., professor of metallurgy, Imperial College of Science and Technology, London, read a paper on "Stainless Metals" before the Royal Society of Arts on Wednesday last, April 29.

THE Haigh Dyeworks, Wigan, have been sold to Mr. J. Harvey, of Bretherton, Preston, for £4,500. It is understood that Mr. Harvey is acting for an interested person in Brazil, and that there is every possibility that the works will continue to be used as dyeworks.

THE Quinquennial Congress of Universities of the Empire will be held in July. The main proceedings will take place in Edinburgh; but, before this, several days will be spent in London by the delegates, where they will be received by the Prince of Wales at Guildhall on July 3.

THE Diamond Nitrate Syndicate is reported to have obtained prospecting concessions for sodium nitrate and other minerals in South-West Africa. The Syndicate has pledged itself to spend approximately £10,000 during the first year of the concession, the ultimate duration of which is said to be five years.

BALLIOL COLLEGE, Oxford, has elected Mr. Oliver Gatty, B.A., as Bedford Lecturer in Physical Chemistry from the beginning of Trinity Term. Mr. Gatty was formerly a Williams exhibitioner of Balloil College and was placed in the first class in the Final Honour School of Natural Science in 1929.

AT the dinner of the Institution of Mining and Metallurgy on Wednesday, April 23, Sir Halford Mackinder announced that the Imperial Economic Committee had decided to appoint a committee to consider the distribution and availability of the minerals and metals of the Empire. Sir William Larke would be the chairman of this committee, which would consist of representatives of Governments of the Empire and representatives of the Imperial Institute and the Institution of Mining and Metallurgy in the British Commonwealth of Nations.

THE Council of the Senate of Cambridge University have issued a detailed report on the proposed allocation of the Rockefeller benefactions. For the new University Library, the amount of £500,000 is to be allocated; for agriculture, including the building and equipment of a new laboratory, £162,000; for biochemistry and biophysics, including a professorship of colloidal physics, £121,500; for botany, £108,500; for physiology, £87,700; for zoology, £168,400; and for physics, for the establishment of a professorship of mathematical physics, £30,000.

A LIST of the industrial research laboratories of the United States has recently been published as *Bulletin* No. 81 of the National Research Council, Washington, D.C. It is the fourth edition of this bulletin and shows a great increase in the number of industrial research centres listed, compared with the third edition of 1927. The increase in number is about 60 per cent. and may be indicative of either the great progress of industrial research in the United States or a greater interest of such research laboratories in this compilation by returning data for publication.

THE annual meeting of the London Section of the Society of Chemical Industry will be held at 8 p.m. on Monday, May 4, in the Chemical Society's Rooms, Burlington House, Piccadilly, W.1. After the formal business Professor W. A. Bone, F.R.S., will lecture on "The Constitution of Coal." The President, Sir Harry McGowan, K.B.E., has promised to be present, and as this is the first opportunity the president has had of meeting the members, it is hoped there will be a large company to welcome him. Dr. G. W. Monier-Williams, O.B.E., F.I.C., has been nominated chairman for the coming year, and Messrs. E. T. Brewis, C. E. Sage and J. J. Fox have been nominated to the committee, for which three vacancies exist.

Obituary

THE DEATH has occurred, at the age of ninety, of Mr. William Alfred Meadows, head of the firm of R. S. Clare and Co., Ltd., tar distillers, Liverpool. This firm was one of the pioneers in the utilisation of gasworks tar for road surfacing.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Accepted Specifications

341,748. Removing Carbon Dioxide from Gases. Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij, 30, Carel van Bylandtlaan, The Hague. International Convention date, February 26, 1929.

Hydrogen is obtained by incomplete combustion of methane or by its reaction with steam, and the products are mixed with excess of steam and passed over sodium or potassium carbonate heated above the condensing point of steam. The carbon dioxide is absorbed to form alkali bicarbonate, which may be heated to 220° C. in vacuo to recover the carbonate, or may be treated with ammonia to obtain ammonium bicarbonate.

341,654. Menthol. Rheinische Kampfer-Fabrik Ges., Oberkassel, Düsseldorf. International Convention date, January 28, 1929.

The hydrogenation products of thymol, menthones and menthenones, or the isomerisation of inactive isomeric menthols are subjected to partial esterification, and the resulting esters purified by crystallisation and then saponified. Pure inactive menthol is obtained, and examples are given.

341,730. Esters and Carboxylic Acids. Imperial Chemical Industries, Ltd., Millbank, London. From E. I. Du Pont de Nemours and Co., Wilmington, Del., U.S.A. Application date, January 31, 1930.

Alkyl esters of a carboxylic acid are treated with another carboxylic acid in presence of sulphuric acid or zinc chloride to obtain the corresponding esters of the second carboxylic acid. In an example, ethyl acetate is treated with formic acid in the presence of concentrated sulphuric acid and distilled to obtain ethyl formate. The remaining ethyl acetate is then distilled off, and the residue contains acetic and formic acids. Other examples are given.

341,781. 1 : 1 : 2-Trichlorethane. Consortium für Elektrochemische Industrie Ges., 20, Zielstattstrasse, Munich, Germany. International Convention date, March 21, 1929.

Vinyl chloride and chlorine are passed into 1 : 1 : 2-trichlorethane or carbon tetrachloride containing a chlorine carrier such as antimony pentachloride. Part of the liquid is periodically withdrawn, washed with sodium carbonate, and the 1 : 1 : 2-trichlorethane produced is separated by fractionation. The process can be made continuous.

341,878. Halogenated Hydrocarbons. H. Dreyfus, 22, Hanover Square, London. Application date, July 19, 1929.

Monohydric aliphatic alcohols are treated with a sulphur or phosphorus halide or oxyhalide, with or without free halogen, in an inert diluent such as carbon tetrachloride, or in the polyhalogenated hydrocarbon product. In an example, a mixture of methyl alcohol, methylene chloride and sulphur chloride is heated to 60°-100° C. and treated with chlorine to obtain methylene chloride. Chloroform, carbon tetrachloride, and other derivatives can be obtained by varying the proportions.

341,884. Dyes. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, September 21, 1929.

Alkali-condensed N.Bzt-pyrazol-anthronyl-benzanthrones are brominated in the presence of an inorganic diluent and a halogenation catalyst such as iodine, sulphur, selenium, phosphorus, or metal salts. With diluents such as chlorsulphonic acid, aluminium chloride and iron chloride, chlorine may also enter the brominated molecule. Examples describe a number of these brominated derivatives.

341,898. Dyes. W. W. Triggs, London. From E. I. Du Pont de Nemours and Co., Wilmington, Del., U.S.A. Application date, July 18, 1929.

A sulphonated aromatic amine or aminoazo compound free from nuclear hydroxyl groups is diazotised, coupled with an amine free from hydroxy groups, the aminoazo or aminodisazo compound condensed with a nitrobenzoyl chloride, the nitro group reduced, the compound diazotised, coupled with an amine free from hydroxy groups, and the amino group acylated by condensation with a carboxylic compound. When the product contains a free amino group it may be diazotised on the fibre and coupled with a component. In an example, 2-naphthylamine-6 : 8 : disulphonic acid→*m*-toluidine is condensed with *p*-nitro-benzoyl chloride and the nitro group reduced. The aminoazo product is diazotised and coupled with *m*-toluidine, and the aminodisazo compound condensed with benzoyl chloride. The product dyes cotton bright yellow shades fast to washing and light. Other examples describe the corresponding treatment of the dyestuffs sulphanilic acid →*m*-toluidine, 2-naphthylamine-6 : 8-disulphonic acid→1-naphthylamine-6-sulphonic acid, and others.

341,902. Benzoic Acid. H. E. Potts, Liverpool. From Monsanto Chemical Works, St. Louis, Mo., U.S.A. Application date, August 21, 1929.

Molten phthalic anhydride is heated to 170°-350° C. with water or a substance yielding it, and a decarbonating catalyst such as hydroxide or phthalate of a metal of the sixth group such as chromium, or one or more compounds of aluminium. Crude phthalic anhydride obtained by oxidation of naphthalene may be used. In an example, phthalic anhydride, chromic and sodium phthalates are treated with steam at 240° C., and the gaseous products passed through a reflux condenser for phthalic acid and anhydride and through a second condenser. About half the anhydride is converted to benzoic acid, which is then steam-distilled. Phthalic acid is added and the process repeated.

341,905. Carbazole Derivatives. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, September 14, 1929.

Carbazole sulphonic acids containing further substituents such as acid groups, *e.g.*, nitro or halogen, have the sulphonic acid groups split off by treating with water under pressure, with or without acid. The introduced groups may be further treated by reduction of a nitro group and diazotising reactions before removing the sulphonic acid groups. Examples describe the treatment of various carbazole sulphonic acids with dilute sulphuric acid under pressure to obtain 1 : 8-dihydroxy-carbazole, 1-amino-8-hydroxy carbazole, 1-chlorocarbazole, 3-amino-carbazole, 1-, 2- and 3-hydroxycarbazoles, 1-hydroxycarbazole-8-carboxylic acid and 1 : 1¹-dicarbazole disulphide.

341,909. Sulphoxylate Preparations. British Celanese, Ltd., 22, Hanover Square, London, and G. H. Ellis, of British Celanese, Spondon, near Derby. Application date, October 18, 1929.

Compositions for use as discharging agents in printing textiles are obtained from a metallic aldehyde or ketone-sulphoxylate by grinding with water with or without protective colloids and/or dispersing agents. An example is given.

341,926. Naphthalene Derivatives. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, October 24, 1928.

Halogen derivatives are obtained by halogenating 1-chloronaphthalene-8-sulphonic acid and splitting off the sulphonic group, or replacing by halogen. Examples are given of the production of 1 : 4 : 8-trichloronaphthalene, 1 : 4-dichloronaphthalene, 1 : 4-dichloro-8-bromonaphthalene, 1-chloro-4-bromonaphthalene, and several others.

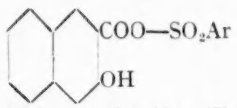
341,961. Lactic Acid and Esters. Imperial Chemical Industries, Ltd., Millbank, London, and W. R. H. Hurtley, Winnington Hall, Northwich, Cheshire. Application date, October 25, 1929.

Acetaldehyde is added to an alcoholic solution of hydrocyanic acid containing some water, sodium cyanide solution added, and hydrochloric acid passed through and the mixture heated to 80° C. for 2 hours. Ammonia is added, ammonium chloride filtered off, and the filtrate distilled to obtain ethyl lactate. If, after the addition of hydrochloric acid, the mixture is heated under reflux for 4 hours, ammonium chloride filtered off, most of the alcohol distilled off, water and hydro-

chloric acid added, the mixture distilled on a water bath, and alcohol and ethyl lactate removed under vacuum, the product is then lactic acid containing some lactide.

341,969. DYES. Major and Co., Ltd., 12, Norfolk Street, Strand, London, H. H. Hinchliffe and W. J. Darby, The Dyeworks, Sculcoates, Hull. Application date, October 25, 1929.

A diazo compound of an aromatic aminosulphonic acid, *e.g.*, 4-toluidine-3-sulphonic acid, or 2-chloro-5-toluidine-4-sulphonic acid, is coupled with the condensed product of 2-naphthol-3-carboxylic acid and an aromatic sulphonyl chloride of the formula



such as *p*-toluene-sulphonyl chloride. The dyes are water-soluble and are suitable for the manufacture of lakes.

341,970. DYES AND INTERMEDIATES. A. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, October 25, 1929.

A 3-nitro-4-acylhydroxy-benzoic acid is treated with a compound containing a primary or secondary amino group and also a group capable of azo dye formation, or a residue convertible into such a group, *e.g.*, an acylamino- or nitro-group, or in addition containing an *o*-hydroxy-carboxylic acid grouping. The products may be reduced to obtain *o*-aminohydroxy derivatives having the above groups in a different nucleus. Examples are given of the condensation of 3-nitro-4-acetoxybenzoyl chloride with 1 : 3-phenylene-diamine-4-sulphonic acid and other sulphonic acids, and also the reduction of the nitro groups with sodium sulphide, or iron filings and acid. The substance 3-nitro-4-acetoxybenzoyl chloride referred to above is obtained by treating 3-nitro-4-acetoxy-benzoic acid with thionyl chloride.

341,975. OXYGEN. W. W. Triggs, London. From Inhabad Ges., 19A, Karlstrasse, Berlin. Application date, October 26, 1929.

Oxygen is obtained by heating a mixture of chlorates or perchlorates and ferrosilicon or ferromanganese. Instability of the mixture is prevented by adding alkaline substances.

341,978. WETTING AND DISPERSING AGENTS. H. T. Böhme Akt.-Ges., 29, Moritzstrasse, Chemnitz, Saxony, Germany. International Convention date, September 7, 1928.

Dust-binding agents, boring oils, etc., are mixed with sulphonation products of alcohols which contain at least six carbon atoms in the molecule and correspond to the saturated and unsaturated higher aliphatic carboxylic acids.

341,997. MENTHENES. Schering-Kahlbaum Akt.-Ges., 170, Müllerstrasse, Berlin. International Convention date, November 15, 1928.

Menthadienes are subjected to partial hydrogenation at 40°-80° C. with a nickel catalyst to obtain menthenes. Examples are given.

342,010. HYDROGENATED PYRIDINE, QUINOLINE, AND THEIR HOMOLOGUES. Schering-Kahlbaum Akt.-Ges., 170, Müllerstrasse, Berlin. International Convention date, November 29, 1928.

Pyridine, quinoline, etc. are hydrogenated by means of compounds such as cyclohexanol and tetrahydronaphthalene, which are readily dehydrogenated under the reaction conditions. Thus, piperidine and cyclohexanone are obtained by heating pyridine with cyclohexanol in the presence of nickel to 210°-230° C.

Applications for Patents

[In the case of applications for patents under the International Convention, the priority date (that is, the original application date abroad which the applicant desires shall be accorded to the patent) is given in brackets, with the name of the country of origin. Specifications of such applications are open to inspection at the Patent Office on the anniversary of the date given in brackets, whether or not they have been accepted.]

Aktieselskabet Dansk Svololsyre- and Superphosphat-Fabrik. Reaction towers for manufacture of sulphuric acid. 11,713. April 20. (Denmark, April 24, 1930.)

Asahina, Y., Ishidate, M., Kihara, G., and Tamura, K. Manufacture of para oxycamphor. 12,195. April 24. (Japan, April 25, 1930.)

Barnes, R. S., Imperial Chemical Industries, Ltd., and Thomas, J. Production of derivatives of vat dyestuffs, etc. 11,722. April 20.

Bentley, W. H., Coates, W. M., and Riley, J., and Sons, Ltd. Manufacture of sulphonated castor oil. 12,012. April 23.

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of hydroxy-thionaphthenes. 11,701. April 20.

—— Manufacture of ortho-hydroxyindolcarboxylic acids of benzene and naphthalene series. 11,957. April 22.

—— Manufacture of ureas. 11,958. April 22.

—— Manufacture of mono- and dicarboxylic acids of the diphenyl series. 11,959. April 22. (March 3.)

—— Manufacture of leuco compounds of vat dyestuffs, etc. 11,960. April 22.

—— Manufacture of fatty-acid derivatives, etc. 11,961, 11,962. April 22.

—— Acceleration of vulcanisation of rubber. 12,082, 12,083. April 23.

—— Manufacture of ureas. 12,300. April 25.

—— Manufacture of azo dyestuffs. 12,301. April 25.

Coley, H. E., and Kekwick, L. O. Production of hydrocarbons. 11,784. April 21.

Du Pont de Nemours and Co., E. I. Indanthrone, etc. 11,617. April 20. (United States, May 13, 1930.)

—— Anthraquinone derivatives. 11,901. April 22. (United States, May 2, 1930.)

Einstein's Electro Chemical Process, Ltd. Preparation of colloidal suspensions of solids. 12,228. April 24.

Faulding and Co., Ltd., F. H. Manufacture of neutral compositions for antiseptic, etc., purposes. 12,211. April 24. (Australia, July 25, 1930.)

Groves, W. W., and Soc. of Chemical Industry in Basle. Dyeing, etc., artificial masses. 11,649. April 20.

—— Manufacture of azo dyestuffs. 11,792. April 21.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Manufacture of butanol amines. 11,631. April 20.

—— Manufacture of coloured compositions. 11,632. April 20.

—— Manufacture of plastic masses, lacquers, etc. 11,633. April 20.

—— Apparatus for manufacture of motor fuels, etc. 11,634. April 20.

I.G. Farbenindustrie Akt.-Ges. Envelopes for gas cells. 11,927. April 22. (Germany, April 22, 1930.)

—— Production of galvanic coatings. 12,196. April 24. (Germany, April 24, 1930.)

—— Removal of ammonia, etc., from gases. 12,302. April 25.

Imperial Chemical Industries, Ltd. Automatic control of valves to provide constant pressure. 11,779. April 21.

International Nickel Co., Inc. Treating nickel-bearing materials. 12,167. April 24. (United States, August 15, 1930.)

Low Temperature Carbonisation, Ltd., Parker, C. H., and Postlethwaite, J. P. Apparatus for distillation of coal, etc. 11,685. April 20.

Soc. des Etablissements Barbet. Apparatus for eliminating benzol from benzolic oils. 11,341. April 16. (France, April 16, 1930.)

Verein für Chemische und Metallurgische Produktion. Production of leuco 1.4.5.8-tetra aminoanthraquinone, etc. 11,274. April 16. (Czecho-Slovakia, April 17, 1930.)

Western Chemical Co. (Paisley), Ltd. Production of anti-corrosive composition. 12,276. April 25.

Paper Pulp in Sweden

ACCORDING to the current issue of the *Swedish Economic Review*, the paper pulp industry in Sweden in 1930 experienced both reduced sales and falling prices. The decline in exports was not so great, however, as in the case of timber, but was about 8 per cent. The trend of prices was unfavourable, expecially for chemical pulp. Quotations for both sulphite and sulphate pulp fell almost consistently during the whole year, and at the end of December the level was about 25-40 per cent. lower than at the turn of the preceding year. Development was more favourable for mechanical pulp, as the decline was only 10-12 per cent. ; this was, however, only the result of severe restriction of production.

B.D.H. Sound Position

AT the annual general meeting of British Drug Houses, Ltd., in London on Wednesday Mr. C. A. Hill (chairman) stated that the trading profit at £58,000 was 19 per cent. less than for 1929, while the total turnover was 8 per cent. less. The balance sheet, he declared, represented a thoroughly sound position after a year of the most trying industrial conditions. The developments of the year included the opening of a Canadian depôt at Toronto, the continued manufacture of vitamin preparations, and important progress in the field of synthetic organic chemical manufacture.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£18 15s. per ton d/d address U.K. in casks.
ACID CHROMIC.—1s. per lb., less 2½% d/d U.K.
ACID HYDROCHLORIC.—Spot, 3s. 9d. to 6s. carboy d/d, according to purity, strength and locality.
ACID NITRIC, 80° Tw.—Spot, £20 to £25 per ton makers' works, according to district and quality.
ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.
AMMONIA (ANHYDROUS).—Spot, 10d. per lb., d/d in cylinders.
AMMONIUM BICHROMATE.—8½d. per lb. d/d U.K., or 8d. c.i.f. export.
BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages free.
BLEACHING POWDER, 35/37%.—Spot, £7 19s. per ton d/d station in casks, special terms for contracts.
BORAX, COMMERCIAL.—Crystals, £13 10s. per ton; granulated, £12 10s. per ton; powder, £14 per ton. (Packed in 1 cwt. bags, carriage paid any station in Great Britain. Prices quoted are for one ton lots and upwards.)
CALCIUM CHLORIDE (SOLID), 70/75%.—Spot, £4 15s. to £5 5s. per ton d/d station in drums.
CHROMIUM OXIDE.—9d. to 9½d. per lb. according to quantity d/d U.K.
CHROMETAN.—Crystals, 3½d. per lb. Liquor, £18 12s. 6d. per ton d/d U.K.
COPPER SULPHATE.—£25 to £25 10s. per ton.
METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 7d. to 1s. 11d. per gall.; pyridinised industrial, 1s. 9d. to 2s. 1d. per gall.; mineralised, 2s. 8d. to 2s. 11d. per gall. 64 O.P., 1d. extra in all cases. Prices according to quantity.
NICKEL SULPHATE.—£38 per ton d/d.
NICKEL AMMONIA SULPHATE.—£38 per ton d/d.
POTASH CAUSTIC.—£30 to £33 per ton.
POTASSIUM BICHROMATE CRYSTALS AND GRANULAR.—4½d. per lb. nett d/d U.K., discount according to quantity; ground ½d. per lb. extra.
POTASSIUM CHLORATE.—3¾d. per lb. ex-wharf, London, in cwt. kegs.
POTASSIUM CHROMATE.—8½d. per lb. d/d U.K., or 8d. c.i.f. export.
SALAMMONIAC.—Firsts lump, spot, £40 17s. 6d. per ton d/d address in barrels. Chloride of ammonia, £37 to £45 per ton, carr. paid.
SALT CAKE, UNGROUND.—Spot, £3 10s. per ton d/d station in bulk.
SODA ASH, 58%.—Spot, £6 per ton, f.o.r. in bags, special terms for contracts.
SODA CAUSTIC, SOLID, 76/77%.—Spot, £14 10s. per ton, d/d station.
SODA CRYSTALS.—Spot, £5 to £5 5s. per ton, d/d station or ex depot in 2-cwt. bags.
SODIUM ACETATE 97/98%.—£21 per ton.
SODIUM BICARBONATE, REFINED.—Spot, £10 10s. per ton d/d station in bags.
SODIUM BICHROMATE CRYSTALS (CAKE AND POWDER)—3½d. per lb. nett d/d U.K., discount according to quantity. Anhydrous ¾d. per lb. extra.
SODIUM BISULPHITE POWDER, 60/62%.—£16 10s. per ton delivered 1-cwt. iron drums for home trade.
SODIUM CHLORATE.—2¾d. per lb.
SODIUM CHROMATE.—3¾d. per lb. d/d U.K., or 3½d. c.i.f. export.
SODIUM NITRITE.—Spot, £19 per ton, d/d station in drums.
SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.
SODIUM SILICATE, 140° Tw.—Spot, £8 5s. per ton, d/d station returnable drums.
SODIUM SULPHATE (GLAUBER SALTS).—Spot, £4 2s. 6d. per ton, d/d address in bags.
SODIUM SULPHIDE SOLID, 60/62%.—Spot, £10 5s. per ton, d/d station in drums. Crystals—Spot, £7 10s. per ton, d/d station in returnable casks.
SODIUM SULPHITE, PEA CRYSTALS.—Spot, £13 10s. per ton, d/d station in kegs. Commercial—Spot, £9 per ton, d/d station in bags.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—5d. to 6¼d. per lb. Crude 60's 1s. to 1s. 1d. per gall. August/December.
ACID CRESYLIC 99/100.—1s. 9d. to 1s. 10d. per gall. B.P., 3s. 6d. per gall. 97/99.—Refined, 2s. 2d. to 2s. 3d. per gall. Pale, 98%, 1s. 8d. to 1s. 9d. Dark, 1s. 4d. to 1s. 4½d.
ANTHRACENE OIL, STRAINED (GREEN OIL).—4½d. to 4¾d. per gall.
BENZOLE.—Prices at works: Crude, 5½d. to 6½d. per gall.; Standard Motor, 1s. to 1s. 1d. per gall. 90%.—1s. 1d. to 1s. 2d. per gall. Pure, 1s. 4d. to 1s 5d. per gall. (The above prices were operative from March 3 last.)
TOLUOLE.—90%, 1s. 8d. per gall. Pure, 1s. 10d. per gall.
XYLOL.—1s. 7d. to 1s. 8d. per gall. Pure, 1s. 10d to 1s. 11d. per gall.
CREOSOTE.—Standard specification, for export, 5dd. to 5½d. net per gall. f.o.b.; for Home, 4d. per gall. d/d.
NAPHTHA.—Solvent, 90/160, 1s. 3d. per gall. Solvent, 95/160, 1s. 4d. per gall. Solvent, 90/190, 1s. to 1s. 2d. per gall.
NAPHTHALENE.—Purified Crystals, £11 11s. per ton.
PITCH.—Medium soft, 45s. per ton, in bulk at makers' works.
PYRIDINE.—90/140, 3s. 3d. to 3s. 6d. per gall. 90/160, 3s. 3d. to 3s. 6d. per gall. 90/180, 1s. 9d. to 2s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:—

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.
ACID ANTHRANILIC.—6s. per lb. 100%.
ACID GAMMA.—Spot, 3s. 6d. per lb. 100% d/d buyer's works.
ACID H.—Spot, 2s. 3d. per lb. 100% d/d buyer's works.
ACID NAPHTHIONIC.—1s. 2d. per lb. 100% d/d buyer's works.
ACID NEVILLE AND WINTHER.—Spot, 2s. 6d. per lb. 100% d/d buyer's works.
ACID SULPHANILIC.—Spot, 8½d. per lb. 100% d/d buyer's works.
ANILINE OIL.—Spot, 8¼d. per lb., drums extra, d/d buyer's works.
ANILINE SALTS.—Spot, 8¼d. per lb. d/d buyer's works, casks free.
BENZALDEHYDE.—Spot, 1s. 8d. per lb., packages extra, d/d buyer's works.
BENZIDINE BASE.—Spot, 2s. 6d. per lb. 100% d/d buyer's works.
BENZOIC ACID.—Spot, 1s. 8½d. per lb. d/d buyer's works.
o-CRESOL 30/31° C.—£2 6s. 5d. per cwt., in 1-ton lots.
m-CRESOL 98/100%.—2s. 9d. per lb., in ton lots.
p-CRESOL 34·5° C.—1s. 9d. per lb., in ton lots.
DICHLORANILINE.—2s. 5d. per lb.
DIMETHYLANILINE.—Spot, 1s. 6d. per lb., packages extra, d/d buyer's works.
DINITROBENZENE.—7½d. per lb.
DINITROCHLORBENZENE.—£74 per ton d/d.
DINITROTOLUENE.—48/50° C., 7d. per lb.; 66/68° C., 7¾d. per lb.
DIPHENYLAMINE.—Spot, 1s. 8d. per lb. d/d buyer s works.
a-NAPHTHOL.—Spot, 1s. 11d. per lb. d/d buyer's works.
B-NAPHTHOL.—Spot, £65 per ton in 1 ton lots, d/d buyer's works.
a-NAPHTHYLAMINE.—Spot, 1s. per lb. d/d buyer's works.
B-NAPHTHYLAMINE.—Spot, 2s. 9d. per lb. d/d buyer's works.
o-NITRANILINE.—5s. 11d. per lb.
m-NITRANILINE.—Spot, 2s. 6d. per lb. d/d buyer's works.
p-NITRANILINE.—Spot, 1s. 8d. per lb. d/d buyer's works.
NITROBENZENE.—Spot, 6½d. per lb., 5-cwt. lots, drums extra, d/d buyer's works.
NITRONAPHTHALENE.—8¾d. per lb.
R. SALT.—Spot, 2s. per lb. 100% d/d buyer's works.
SODIUM NAPHTHIONATE.—Spot, 1s. 6d. per lb. 100% d/d buyer's works.
o-TOLUIDINE.—Spot, 8d. per lb., drums extra, d/d buyer's works.
p-TOLUIDINE.—Spot, 1s. 6d. per lb. d/d buyer's works.
m-XYLIDINE ACETATE.—3s. 3d. per lb., 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £7 5s. to £7 10s. per ton. Grey, £13 per ton. Liquor, 9d. per gall.
ACETONE.—£63 to £65 per ton.
CHARCOAL.—£6 to £8 10s. per ton, according to grade and locality.
IRON LIQUOR.—24°/30° Tw., 10d. to 1s. 2d. per gall.
RED LIQUOR.—16° Tw., 8½d. to 10d. per gall.
WOOD CREOSOTE.—1s. 9d. per gall., unrefined.
WOOD NAPHTHA, MISCIBLE.—2s. 9d. to 2s. 11s. per gall., according to quantity. Solvent, 3s. 9d. per gall.
WOOD TAR.—£4 to £5 per ton.
BROWN SUGAR OF LEAD.—£32 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 1d. per lb., according to quality; Crimson, 1s. 3d. to 1s. 5d. per lb., according to quality.
ARSENIC SULPHIDE, YELLOW.—1s. 7d. to 1s. 9d. per lb.
BARYTES.—£6 to £7 10s. per ton, according to quality.
CADMIUM SULPHIDE.—4s. 6d. to 5s. per lb.
CARBON BISULPHIDE.—£26 to £28 per ton, according to quantity; drums extra.
CARBON BLACK.—3d. to 4d. per lb., ex wharf.
CARBON TETRACHLORIDE.—£40 to £50 per ton, according to quantity: drums extra.
CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.
DIPHENYLGUANIDINE.—2s. 6d. per lb.
INDIARUBBER SUBSTITUTES, WHITE.—4¾d. to 5¾d. per lb.; Dark, 4¾d. to 4¾d. per lb.
LAMP BLACK.—£28 per ton, barrels free.
LITHOPONE, 30%.—£19 to £21 per ton.
SULPHUR.—£9 10s. to £13 per ton, according to quality.
SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.
SULPHUR PRECIP. B.P.—£55 to £60 per ton, according to quantity.
VERMILION, PALE OR DEEP.—6s. 6d.-7s. per lb.
ZINC SULPHIDE.—8d. to 11d. per lb.

Pharmaceutical and Photographic Chemicals

ACETANILIDE.—1s. 4d. per lb. for 1-cwt. lots.
ACID, ACETIC, PURE, 80%.—£37 5s. per ton d/d address U.K. in casks.
ACID, ACETYL SALICYLIC.—2s. 7d. to 2s. 9d. per lb., according to quantity.
ACID, BENZOIC B.P.—1s. 9d. to 1s. 10d. per lb., for synthetic product. Solely ex Gum, 1s. 3d. to 1s. 6d. per oz.; 50-oz. lots, 1s. 3d. per oz.
ACID, BORIC B.P.—Crystal, £31 per ton; powder, £32 per ton; For one-ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. per lb., less 5%.
ACID, GALLIC.—2s. 11d. per lb. for pure crystal, in cwt. lots.
ACID, MOLYBDIC.—5s. 3d. per lb. in ½-cwt. lots. Packages extra. Special prices for quantities and contracts.
ACID, PYROGALLIC, CRYSTALS.—7s. 6d. per lb. for 28-lb. lots. Resublimed, 8s. 6d. per lb. for 28-lb. lots.
ACID, SALICYLIC, B.P. PULV.—1s. 5d. to 1s. 8d. per lb. Technical.—1s. to 1s. 2d. per lb.
ACID, TANNIC B P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—11⅞d. per lb., less 5%.
AMIDOL.—7s. 6d. to 11s. 3d. per lb., according to quantity.
AMMONIUM BENZOATE.—3s. 9d. per lb.
AMMONIUM CARBONATE B.P.—£36 per ton. Powder, £39 per ton in 5-cwt. casks. Resublimated, 1s. per lb.
AMMONIUM MOLYBDATE.—4s. 9d. per lb. in ½-cwt. lots. Packages extra. Special prices for quantities and contracts.
ARGENT. NITRAS, CRYSTALS.—1s. 1d. per oz.
ATROPHINE SULPHATE.—7s. to 7s. 6d. per oz., according to quantity.
BARBITONE.—5s. 9d. to 6s. per lb.
BISMUTH CARBONATE.—6s. 9d. per lb.
BISMUTH CITRATE.—8s. per lb.
BISMUTH SALICYLATE.—7s. 3d. per lb.
BISMUTH SUBNITRATE.—6s. per lb.
BISMUTH NITRATE.—Cryst. 5s. per lb.
BISMUTH OXIDE.—9s. 10d. per lb.
BISMUTH SUBCHLORIDE.—9s. 7d. per lb.
BISMUTH SUBGALLATE.—7s. 3d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.
BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 0½d. per lb.; 12 W. Qts. 11½d. per lb.; 36 W. Qts. 11d. per lb. Liquor Bismuth B.P., in W. Qts., 1s. 2d. per lb.; 6 W. Qts., 11½d. per lb.; 12 W. Qts., 10d. per lb.; 36 W. Qts., 9½d. per lb.
BORAX B.P.—Crystal, £21 10s. per ton; powder, £22 per ton; for one-ton lots and upwards. Packed in 1-cwt. bags carriage paid any station in Great Britain.
BROMIDES.—Ammonium, 1s. 9d. per lb.; potassium, 1s. 4½d. per lb.; granular, 1s. 5d. per lb.; sodium, 1s. 7d. per lb. Prices for 1-cwt. lots.
CAFFEIN, PURE.—6s. 6d. per lb.
CAFFEIN CITRAS.—5s. per lb.
CALCIUM LACTATE.—B.P., 1s. to 1s. 6d. per lb., according to quantity.
CAMPHOR.—Refined flowers, 2s. 10d. to 3s. per lb., according to quantity; also special contract prices.
CHLOROFORM.—2s. 3d. per lb., according to quantity.
EPHEDRINE, PURE.—12s. 6d. to 13s. 6d. per oz.
ERGOSTEROL.—2s. 6d. per gm.
ETHERS.—S.G. ·730—1s. to 1s. 1d. per lb., according to quantity; other gravities at proportionate prices.
FORMALDEHYDE, 40%.—37s. per cwt., in barrels, ex wharf.
GLUCOSE, MEDICINAL.—1s. 6d. to 2s. per lb. for large quantities.
HEXAMINE.—2s. 3d. to 2s. 6d. per lb.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 3s. per gall.
HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 2s. 11d. to 3s. 4d. per lb.; potassium, 3s. 2d. to 3s. 7d. per lb.; sodium, 3s. 1d. to 3s. 6d. per lb.; for 28-lb. lots.
IRON AMMONIUM CITRATE.—B.P., 1s. 11d. per lb., for 28-lb. lots. Green, 2s. 6d. per lb., list price. U.S.P., 2s. 9d. per lb. list price.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
IRON QUININE CITRATE.—B.P., 8¼d. to 8¾d. per oz., according to quantity.
MAGNESIUM CARBONATE.—Light B.P., 36s. per cwt.
MAGNESIUM OXIDE.—Light Commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb.
MENTHOL.—A.B.R. recrystallised B.P., 14s. per lb. net; Synthetic, 8s. 6d. to 12s. per lb.; Synthetic detached crystals, 8s. 6d. to 10s. per lb., according to quantity; Liquid (95%), 9s. per lb
MERCURIALS B.P.—Up to 1-cwt. lots, Red Oxide, crystals, 8s. 4d. to 8s. 5d. per lb., levig., 7s. 10d. to 7s. 11d. per lb.; Corrosive Sublimate, Lump, 6s. 7d. to 6s. 8d. per lb., Powder, 6s. to 6s. 1d. per lb.; White Precipitate, Lump, 6s. 9d. to 6s. 10d. per lb., Powder, 6s. 10d. to 6s. 11d. per lb., Extra Fine, 6s. 11d. to 7s. per lb.; Calomel, 7s. 2d. to 7s. 3d. per lb.; Yellow Oxide, 7s. 8d. to 7s. 9d. per lb.; Persulph, B.P.C., 6s. 11d. to 7s. per lb.; Sulph. nig., 6s. 8d. to 6s. 9d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 3d. to 1s. 5d. per lb.
PARAFORMALDEHYDE.—1s. 8d. per lb.
PARALDEHYDE.—1s. 1d. per lb.
PHENACETIN.—3s. 9d. to 4s. 1d. per lb.
PHENAZONE.—7s. 2d. per lb. for 1 cwt. lots.
PHENOLPHTHALEIN.—5s. to 5s. 2½d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—82s. per cwt., less 2½ per cent.
POTASSIUM CITRATE.—B.P., 1s. 9d. per lb. for 28-lb. lots.
POTASSIUM FERRICYANIDE.—1s. 7½d. per lb., in 125-lb. kegs.
POTASSIUM IODIDE.—16s. 8d. to 17s. 9d. per lb., as to quantity.
POTASSIUM METABISULPHITE.—50s. per cwt. d/dLondon, kegs free.
POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.
QUININE SULPHATE.—1s. 8d. per oz. for 1,000-oz. lots.
SACCHARIN.—43s. 6d. per lb.
SALICIN.—16s. 6d. to 17s. 6d. per lb., according to quantity.
SILVER NITRATE.—10d. per oz. for 500-oz. lots, sticks, 2d. per oz. extra.
SODIUM BARBITONUM.—8s. 6d. to 9s. per lb. for 1-cwt. lots.
SODIUM BENZOATE B.P.—1s. 6½d. per lb. for 1-cwt. lots.
SODIUM CITRATE.—B.P.C. 1911, 1s. 6d. per lb. B.P.C. 1923, and U.S.P., 1s. 10d. per lb. for 28-lb. lots.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—80s. per cwt. net, ton lots, d/s of 5 cwt. Crystals, 2s. 6d. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 10d. to 2s. 2d. per lb. Crystal, 1s. 11d. to 2s. 3d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£26 to £28 per ton, according to quantity. Delivered U.K.
STRYCHNINE, ALKALOID CRYSTAL, 2s. per oz.; hydrochloride, 1s. 9½d. per oz.; nitrate, 1s. 8d. per oz.; sulphate, 1s. 9d. per oz., for 1,000-oz. quantities.
TARTAR EMETIC, B.P.—Crystal or powder, 1s. 9d. to 2s. per lb.
THYMOL.—Puriss, 6s. to 7s. per lb., according to quantity. Natural, 12s. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.
AUBEPINE (EX ANETHOL).—9s. per lb.
AMYL ACETATE.—2s. 3d. per lb.
AMYL BUTYRATE.—4s. 9d. per lb.
AMYL CINNAMIC ALDEHYDE.—9s. per lb.
AMYL SALICYLATE.—2s. 6d. per lb.
ANETHOL (M.P. 21/22° C.).—5s. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—1s. 9d. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—1s. 9d. per lb.
BENZYL BENZOATE.—2s. 2d. per lb.
CINNAMIC ALDEHYDE NATURAL.—11s. 9d. per lb.
COUMARIN.—12s. per lb.
CITRONELLOL.—6s. 6d. per lb.
CITRAL.—6s. 6d. per lb.
ETHYL CINNAMATE.—6s. 9d. per lb.
ETHYL PHTHALATE.—2s. 6d. per lb.
EUGENOL.—8s. 6d. per lb.
GERANIOL.—6s. to 10s. per lb.
HELIOTROPINE.—5s. 6d. per lb.
ISO EUGENOL.—10s. 6d. per lb.
LINALYL ACETATE, EX BOIS DE ROSE.—7s. 6d. per lb. Ex Shui Oil, 7s. 6d. per lb.
METHYL ANTHRANILATE.—6s. 3d. per lb.
METHYL BENZOATE.—4s. 3d. per lb.
MUSK XYLOL.—6s. 6d. per lb.
PHENYL ETHYL ACETATE.—10s. per lb.
PHENYL ETHYL ALCOHOL.—8s. 3d. per lb.
RHODINOL.—40s. per lb.
SAFROL—1s. 6d. per lb.
VANILLIN, EX CLOVE OIL.—14s. 6d. to 16s. 6d. per lb. Ex Guaiacol.—13s. to 15s. per lb.

Essential Oils

ANISE OIL.—2s. 6d. per lb.
BERGAMOT OIL.—9s. per lb.
BOURBON GERANIUM OIL.—17s. per lb.
CAMPHOR OIL.—White, 2s. per lb.; Brown, 1s. 6d. per lb.
CANANGA.—Java, 8s. per lb.
CINNAMON OIL LEAF.—5s. per oz.
CITRONELLA OIL.—Java, 2s. 3d. per lb., c.i.f. Pure Ceylon, 2s. 1d. per lb.
CLOVE OIL, 90/92%.—7s. per lb.
EUCALYPTUS OIL, AUSTRALIAN, B.P. 70/75%—1s. 7d. per lb.
LAVENDER OIL.—Mont Blanc, 38/40%, 8s. 6d. per lb
OTTO OF ROSE.—Anatolian, 60s. per oz.; Bulgarian, 80s. per oz.
PALMA ROSA.—9s. 6d. per lb.
PEPPERMINT OIL.—Wayne County, 8s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, April 30, 1931.

THERE has been a steady flow of inquiry for various chemicals and the uptake on contract account is fairly good. Prices remain steady.

General Chemicals

ACETONE.—There is a fairly active demand at £60 to £63 per ton, according to quantity.

ACID, ACETIC.—The market is firm at £36 5s. to £38 5s. for technical 80% and £37 5s. to £39 5s. for pure 80%, with a satisfactory demand.

ACID, CITRIC.—Market is quiet at about 1s. 1d. per lb., less 5%.

ACID, FORMIC, 85%.—Unchanged at about £38 per ton, and a small business is being done.

ACID, LACTIC.—Is in steady request, with the price for 50% by weight pale technical quality unchanged at about £39 per ton.

ACID, OXALIC.—Continues in active demand, with the market firm at £30 7s. 6d. to £32 per ton, according to quantity.

ACID, TARTARIC.—Is in slightly better request, with the price steady at about 11½d. to 1s. per lb., less 5%.

ALUMINA SULPHATE.—Continues unchanged at £7 15s. to £8 5s. per ton, for 17/18% iron-free quality, and there is a regular demand.

ARSENIC.—Whilst the demand is not so heavy the market remains firm at £19 to £19 10s. per ton.

BARIUM CHLORIDE.—Is in quiet request at about £9 to £9 10s. per ton.

CREAM OF TARTAR.—Unchanged at 82s. to 83s. per cwt., ex warehouse London, and is receiving a fair demand.

COPPER SULPHATE.—Steady at £21 10s. to £22 5s. per ton, less 5%, according to quantity, free on rails London, and business is a little brighter.

FORMALDEHYDE.—Is in satisfactory demand, with the price a little easier at £29 10s. to £30 per ton.

LEAD ACETATE.—In quiet request at about £32 5s. per ton for white, with the brown quality quoted at £1 per ton less.

LEAD NITRATE.—Quoted at a lower basis of £28 10s. per ton, and in fair demand.

LITHOPONE.—Unchanged at £18 to £22 per ton according to grade and quantity, and there is an improvement in the demand.

POTASSIUM BICHROMATE.—Firm at 4¼d. per lb.

POTASSIUM CHLORATE.—In active request at £28 to £32 per ton, according to quantity.

POTASSIUM PERMANGANATE.—In steady demand at 5¼d. to 5½d. per lb., ex warehouse, and the market is firm.

SODIUM BICHROMATE.—A regular trade is passing at 3½d. per lb.

SODIUM CHLORATE.—The market is firm at £26 10s. per ton, at which figure a fair business is being placed.

SODIUM HYPOSULPHITE.—Photographic crystals are in better demand at £14 5s. per ton. The commercial quality is only meeting with a quiet trade at about £8 10s. per ton.

SODIUM PRUSSIATE.—Unchanged at 4¾d. to 5¼d. per lb. according to quantity, and the market is firm.

TARTAR EMETIC.—There is a small trade passing at about 10¾d. per lb.

ZINC SULPHATE.—Steady at about £11 per ton.

Coal Tar Products

THE market for coal tar products is unchanged from last week, and prices remain unaltered.

MOTOR BENZOL.—Remains at 1s. 4½d. to 1s. 5½d. per gallon, f.o.r.

SOLVENT NAPHTHA.—Obtainable at 1s. 1½d. to 1s. 2d. per gallon, f.o.r.

HEAVY NAPHTHA.—Unchanged, at 11d. to 1s. 0½d. per gallon, f.o.r.

CREOSOTE OIL.—Quoted at about 3d. to 3½d. per gallon, f.o.r., in the North, and at 4d. to 4½d. per gallon in London.

CRESYLIC ACID.—Remains at about 1s. 8d. per gallon for the 98/100% quality, and at about 1s. 6d. per gallon for the dark quality 95/97%.

NAPHTHALENES.—Unchanged, the firelighter quality being quoted at £3 10s. to £3 15s. per ton, the 74/76 quality at £4 to £4 5s. per ton, and the 76/78 quality at about £5 per ton.

PITCH.—Quoted at 37s. 6d. to 40s. per ton, f.o.b. East Coast port.

THE following additional prices have been supplied to us :—

Carbolic Acid is steady at prices previously quoted : 5-ton lots at 5½d., smaller quantities at 6¼d. per lb.

Aspirin is unchanged at 2s. 7d. to 2s. 9d. per lb.

Vanillin.—Clove oil is quoted at the rate of 14s. 6d. to 16s. 6d. per lb. according to quantity, with guaiacol material on offer at 1s. 6d. per lb less.

Salicylic Acid B.P.—1s. 5d. to 1s. 8d. per lb.

Methyl Salicylate.—1s. 3d. to 1s. 5d. per lb.

Motor Benzol.—This is higher in price in accordance with duty which has just been added. We make our price to-day 1s. 5d. per gallon at works.

Nitrogen Fertilisers

Sulphate of Ammonia.—Export.—The market continues quiet and prices remain unchanged at £7 per ton f.o.b. U.K. port in single bags, for neutral quality 20·6 per cent. nitrogen. The consuming season on the Continent witnessed a considerable fall in the consumption compared with the previous year. *Home.*—Throughout April the demand was very satisfactory in Scotland and Ireland, but there was a falling off in England and Wales, particularly in the south. Total deliveries for April will show a decline on last year's figures.

Nitrate of Soda.—It is understood that the sales of Chilean nitrate will show a considerable decline on those of last year, but in view of the depressed state of agriculture in many markets this is in accordance with general expectations.

Latest Oil Prices

LONDON, April 29.—LINSEED OIL closed quiet at unchanged rates. Spot, ex mill, £18 5s.; May, £16 12s. 6d.; May-August, £16 17s. 6d.; September-December, £17 15s., naked. RAPE OIL was dull. Crude extracted, £29; technical refined, £30 10s., naked, ex wharf. COTTON OIL was quiet. Egyptian crude, £21; refined common edible, £25; deodorised, £27, naked, ex mill. TURPENTINE was dull and 6d. to 9d. per cwt. lower. American, spot, 43s.; May-June, 43s. 3d.

HULL.—LINSEED OIL, naked, spot to April, closed at £17 5s.; May-August, £17 10s.; September-December, £17 15s. per ton. COTTON OIL, Egyptian, crude, spot, £20 10s.; edible, refined, spot, £23 5s.; technical, spot, £23; deodorised, £23 5s. CASTOR OIL, pharmacy, spot, 41s.; firsts, 36s.; seconds, 34s. per cwt. PALM KERNEL OIL, crude, naked, f.m.q., spot, £22 10s. GROUNDNUT OIL, crushed-extracted, spot, £24 10s.; deodorised, £28 10s. SOYA OIL, crushed-extracted, spot, £19; deodorised, £22 10s. RAPE OIL, crushed-extracted, spot, £28 10s.; refined, £30 10s. COD OIL, nominal, at 21s. per cwt.

South Wales By-Products

THERE is scarcely any change in South Wales by-product activities. Patent fuel exports are small and the demand for pitch is consequently well below normal. Pitch supplies are well in excess of demands, but quotations are unchanged. Road tar is in slightly better demand, with values steady round about 13s. per 40-gallon barrel. Refined tars are also in better request, with quotations for gasworks and coke-oven tar unchanged. Naphthas have a poor and sporadic market; solvent has a limited call, but heavy has scarcely any demand. Quotations are unchanged. Patent fuel prices, for export, are as follows :—20s. 6d. to 21s., ex-ship Cardiff; 19s. 6d. to 20s., ex-ship Swansea. Coke prices are :—Best foundry, 34s. to 36s. 6d.; good foundry, 22s. 6d. to 25s.; furnace, 16s. 6d. to 17s. 6d.

Scottish Coal Tar Products

TRADING in water-white products has been at a standstill during the week under review but cresylic acid and virgin grades of creosote have been attracting more attention.

Cresylic Acid.—While more business has been arranged, there is no change in prices, which are easy. Pale, 99/100%, 1s. 5d. to 1s. 6d. per gallon; pale, 97/99%, 1s. 3d. to 1s. 4d. per gallon; dark, 97/99%, 1s. 2d. to 1s. 3d. per gallon; high boiling, 1s. 8d. to 1s. 9d. per gallon; all f.o.r. makers' works.

Carbolic Sixties.—Conditions continue dull and value remains nominal at about 1s. 3d. to 1s. 5d. per gallon f.o.r. in bulk.

Creosote Oil.—Acid-bearing oils are in good demand and washed oil also shows some improvement. Specification oils, 2½d. to 3d. per gallon; gas works ordinary, 3½d. to 3¾d. per gallon; washed oil, 3¼d. to 3½d. per gallon; all ex works in bulk.

Coal Tar Pitch.—Seasoned demand is over and value is nominal at about 37s. 6d. to 40s. per ton f.a.s. Glasgow for export, and about 37s. 6d. per ton f.o.r. works, for home trade.

Blast Furnace Pitch.—Controlled prices have been fixed for a further period at 30s. per ton f.o.r. works for home trade, and 35s. per ton f.a.s. Glasgow for export.

Refined Coal Tar.—Competition continues keen and quotations are about 2½d. to 3¾d. per gallon f.o.r. naked.

Blast Furnace Tar.—Without interest, at 2¾d. per gallon.

Crude Naphtha.—Quotations are firm at 4d. to 5d. per gallon, according to quality.

Water White Products.—With the increase of tax on petrol, prices are likely to stiffen but, meantime, few orders are being placed. Motor benzol is about 1s. 4d. per gallon; 90/160 solvent, 1s. 3d. per gallon; and 90/190 heavy solvent, 1s. 1d. per gallon; all f.o.r. in bulk.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing this firm's independent and impartial opinions.

Glasgow, April 28, 1931.

INQUIRIES continue brisk during the past week, and business in the Scottish heavy chemical market is steadily increasing.

Industrial Chemicals

ACETONE.—B.G.S.—£60 to £63 per ton, ex wharf, according to quantity.

ACID, ACETIC.—Prices ruling are as follows: glacial, 98/100%, £47 to £58 per ton; pure, £37 5s. per ton; technical, 80%, £36 5s., delivered in minimum lots of 1 ton.

ACID, BORIC.—Granulated commercial, £22 per ton; crystals, £23 per ton; B.P. crystals, £31 per ton; B.P. powder, £32 per ton, in 1-cwt. bags, delivered Great Britain free in one-ton lots upwards.

ACID, HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality, 5s. per carboy, ex works, full wagon loads.

ACID, NITRIC, 80° QUALITY.—£23 per ton, ex station, full truck loads.

ACID, OXALIC.—98/100%.—On offer at 3¼d. per lb., ex store. On offer from the Continent at 3¾d. per lb., ex wharf.

ACID, SULPHURIC.—£3 7s. 6d. per ton, ex works, for 144° quality; £5 15s. per ton for 168°. Dearsenicated quality, 20s. per ton extra.

ACID, TARTARIC, B.P. CRYSTALS.—Quoted 1s. per lb., less 5%, ex wharf. On offer for prompt delivery from the Continent at 11¼d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE.—Quoted round about £8 10s. per ton, ex store.

ALUM, LUMP POTASH.—Now quoted £8 10s. per ton., c.i.f. U.K. ports. Crystal meal, about 2s. 6d. per ton less.

AMMONIA ANHYDROUS.—Quoted 10½d. per lb., containers extra and returnable.

AMMONIA CARBONATE.—Lump quality quoted £36 per ton. Powdered, £38 per ton, packed in 5 cwt. casks, delivered U.K. stations or f.o.b. U.K. ports.

AMMONIA LIQUID, 80°.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station. Fine white crystals offered from the Continent at about £17 5s. per ton, c.i.f. U.K. ports.

ANTIMONY OXIDE.—Spot material obtainable at round about £26 per ton, ex wharf. On offer for shipment from China at about £25 per ton, c.i.f. U.K.

ARSENIC, WHITE POWDERED.—Quoted £22 10s. per ton, ex wharf. Spot material still on offer at £22 15s. per ton, ex store.

BARIUM CHLORIDE.—In good demand and price about £9 10s. per ton, c.i.f. U.K. ports. For Continental materials our price would be £8 10s. per ton, f.o.b. Antwerp or Rotterdam.

BLEACHING POWDER.—British manufacturers' contract price to consumers unchanged at £6 15s. per ton, delivered in minimum 4-ton lots. Continental now offered at about the same figure.

CALCIUM CHLORIDE.—Remains unchanged. British manufacturers' price, £4 15s. to £5 5s. per ton, according to quantity and point of delivery. Continental material on offer at £4 7s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—At about £3 15s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports.

FORMALDEHYDE, 40%.—Now quoted £30 10s. per ton, ex store. Continental on offer at about £29 per ton, ex wharf.

GLAUBER SALTS.—English material quoted £4 10s. per ton, ex station. Continental on offer at about £3 per ton, ex wharf.

LEAD, RED.—Price now £32 per ton, delivered buyers' works.

LEAD, WHITE.—Quoted £42 per ton, carriage paid.

LEAD ACETATE.—White crystals quoted round about £33 to £34 per ton c.i.f. U.K. ports. Brown on offer at about £1 per ton less.

MAGNESITE, GROUND CALCINED.—Quoted £9 10s. per ton, ex store.

METHYLATED SPIRIT.—Industrial quality 64 o.p. quoted 1s. 8d. per gallon, less 2½% delivered.

POTASSIUM BICHROMATE.—Quoted 4¼d. per lb., delivered U.K. or c.i.f. Irish ports, with an allowance for contracts.

POTASSIUM CARBONATE.—Spot material on offer, £25 10s. per ton ex store. Offered from the Continent at £24 15s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 99¾/100% POWDER.—Quoted £29 per ton ex store; crystals 30s. per ton extra.

POTASSIUM NITRATE.—Refined granulated quality quoted £20 17s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton ex store.

POTASSIUM PERMANGANATE B.P. CRYSTALS.—Quoted 5¼d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Spot material quoted 7d. per lb. ex store. Offered for prompt delivery from the Continent at about 6¾d. per lb. ex wharf.

SODA CAUSTIC.—Powdered 98/99%, £17 10s. per ton in drums, £18 15s. in casks. Solid 76/77% £14 10s. per ton in drums, £14 12s. 6d. per ton for 70/72% in drums; all carriage paid buyer's station, minimum four-ton lots; for contracts 10s. per ton less.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3½d. per lb., delivered buyer's premises, with concession for contracts.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powdered or pea quality, 7s. 6d. per ton extra. Light soda ash, £7 13s. per ton, ex quay, minimum four-ton lots, with various reductions for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 2s. 6d. per ton, ex station, minimum four-ton lots. Pea crystals on offer at £15 per ton, ex station, minimum four-ton lots.

SODIUM NITRATE.—Chilean producers now offer at £10 per ton, carriage paid, buyer's sidings, minimum six-ton lots.

SODIUM PRUSSIATE.—Quoted 5¼d. per lb., ex store. On offer at 5d. per lb., ex wharf, to come forward.

SODIUM SULPHATE (SALTCAKE).—Price, 60s. per ton, ex works; 65s. per ton, delivered, for unground quality. Ground quality 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices for home consumption: solid 61/62%, £10 per ton; broken, 60/62%, £11 per ton; crystals 30/32%, £8 2s. 6d. per ton, delivered buyers' works on contract, minimum four-ton lots. Special prices for some consumers. Spot material 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 10s. per ton; rock, £9 5s. per ton; ground American, £8 10s. per ton, ex store.

ZINC CHLORIDE 98%.—British material now offered at round about £18 10s. per ton, f.o.b. U.K. ports.

ZINC SULPHATE.—Quoted £11 per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Diffusion in Solids

MEMBERS of the British Association of Chemists, the Institute of Chemistry and the Society of Chemical Industry, were present at Derby on Wednesday, April 22, to hear a lecture on "Diffusion in Solids," delivered by Mr. A. Bramley, head of the Department of Pure and Applied Science at Loughborough College.

After referring briefly to the law of diffusion of gases, the lecturer described Graham's experiments on the diffusion of substances in liquid solutions and referred to Stefan's mathematical analysis of these results, by which it was shown that Fick's law of diffusion was obeyed. Roberts-Austen's classical experiments on the diffusion of gold and platinum into solid lead were then mentioned, and a detailed account of the lecturer's own work on the diffusion of carbon into and out of steel was given. The precautions necessary in order to obtain uniformity of cementation all over the surface of the specimens treated were explained, photomicrographs and curves of analytical results being shown to illustrate the various points dealt with. Peculiarities in the distribution of the carbon in the partially-decarburised zones of a series of high-carbon steels were described as being caused by the precipitation of some of the carbon in the free state, and it was shown, from the results of this series of experiments, how the position of the free carbon line in the iron-carbon equilibrium diagram could be deduced.

A brief consideration of the production and character of nitrogen cementations followed, further photomicrographs being shown to illustrate the effect of various factors on nitrogenation of iron and steel and the production of mixed nitrogen and carbon cases.

Exemption from Key Industry Duty

THE Treasury have made an Order under Section 10 (5) of the Finance Act, 1926, exempting sodium ethyl methyl barbiturate from Key Industry duty from May 1 to December 31, 1931. The Treasury Order will shortly be published by the Stationery Office.

Manchester Chemical Market

[From Our Own Correspondent.]

Manchester, April 30, 1931.

Progress is slow in the chemical market here, and so far as fresh business is concerned buyers are displaying comparatively little interest in entering into commitments for delivery forward, the bulk of them taking sufficient and little more to meet early needs. In the aggregate, new bookings have only been moderate in extent, although, on the whole, contract users are specifying for fair quantities. Whilst it is still reasonably correct to state that the general tone of the market keeps steady, a certain amount of price reaction is to be observed in respect of several lines.

Heavy Chemicals

Dibasic phosphate of soda continues to attract limited attention, with values about maintained at round £10 10s. per ton. There is a moderate movement of saltcake, current offers of which range from £2 15s. to £3 per ton. The demand for sulphide of sodium has been inactive this week, and quotations for this material are not too strong, the 60-65 per cent. concentrated solid quality being offered at about £9 5s. per ton, and the commercial product at £8. A quietly steady business is going through in the case of bicarbonate of soda, values of which are well held at round £10 10s. per ton. Not a great deal of interest is being shown just now in chlorate of soda, though prices in this section keep up at about £27 per ton. Bichromate of soda, also, is maintained on the basis of 3½d. per lb., less 1 to 2½ per cent. discount, according to quantity, a moderate enquiry being reported. Prussiate of soda is in fair request, and quotations are firm at from 4½d. to 5¼d. per lb., according to quantity. There has been little change in the price position of hyposulphite of soda, although the demand is rather restricted; the photographic material is quoted at £15 to £15 5s. per ton, and the commercial at round £9. There is a fair contract demand for caustic soda, which is firm at from £12 15s. to £14 per ton, according to quality. Alkali keeps steady at round £6 per ton, a moderate trade being put through.

The demand for permanganate of potash is of limited extent, but prices keep up at about 5½d. per lb. for the B.P. grade and 5¼d. for the commercial product. Chlorate of potash is in quiet call, with offers still in the neighbourhood of £27 10s. per ton. Yellow prussiate of potash is attracting a moderate amount of attention at firm prices, these ranging from 6¾d. to 7¼d. per lb., according to quantity. Caustic potash keeps fairly steady at from £28 10s. to £29 per ton, carbonate of potash selling in moderate quantities at up to £25 10s. per ton. Quotations of bichromate of potash keep steady at 4¼d. per lb., less 1 to 2½ per cent., according to quantity, with buying interest on moderate lines.

The persistent weakness in the copper market continues to react on sulphate, to-day's offers of which are at down to £19 10s. per ton, f.o.b. Arsenic prices keep steady at round £19 5s. per ton at the mines for white powdered, Cornish makes, with sales on a moderate scale. The lead products are meeting with only a quiet demand, and values are easier at about £32 10s. per ton for white acetate and £31 10s. for the brown material, with nitrate at £29. The acetates of lime are still showing indications of weakness, and the business passing is relatively small; the grey quality is at round £12 10s. per ton, and the brown at £7 5s.

Acids and Tar Products

There is a small enquiry about for citric acid, offers of which are at about 1s. 0¾d. per lb., with tartaric in moderate request at 11½d. Oxalic acid meets with a quietly steady demand, and at £1 12s. per cwt., ex store, values show little alteration. Acetic acid maintains its firmness, and a fair business is being put through; the glacial material is quoted at £51 per ton for the technical grade, and the 80 per cent. commercial at £37.

In the by-products section forward transactions in pitch are reported at up to 37s. 6d. per ton, f.o.b. Creosote oil is a quiet and easy market, with offers ranging from 3d. to 3¾d. per gallon at works, according to grade. Solvent naphtha has firmed up in consequence of the additional petrol duty, about 1s. 3d. per gallon, naked, being quoted to-day. Carbolic acid is only in moderate demand at from 1s. 1d. to 1s. 2d. per gallon, naked, for crude 60's, and 5d. per lb., f.o.b., for crystals.

Company News

Eastman Kodak Co. of New Jersey.—Slightly lower earnings are shown in the report for 1930. After providing $2,632,422 for taxes and $4,874,326 for depreciation, the net figure is $20,353,789, against $22,014,916 in 1929. The surplus, after paying the usual dividend of $8 per share on the common shares, is $1,894,867, against $4,786,862.

Aluminium Corporation, Ltd.—The report for year 1930 states that the profit was £12,413, and after providing for debenture interest, less interest received on proceeds of sale of hydraulic works, mortgage interest and directors' fees, a net loss of £5,801 is brought out, and £7,276 brought forward, making total debit at profit and loss account £13,077, to be carried forward.

Gypsum Lime and Alabastine Co., Canada.—Net earnings for 1930 amounted to $798,383, against $1,315,315 in 1929. The profit for the period was $317,890, which, added to surplus of previous year of $530,033, makes $847,923. Dividends paid on the common shares absorbed $594,303, and after providing for dominion tax the surplus carried forward is reduced to $294,094.

Magadi Soda Co., Ltd.—The profit and loss account for the year ended December 31, 1930, after providing £16,000 for obsolescence and £26,425 for debenture interest, shows a loss of £17,249, which, less credit balance brought forward of £7,763, leaves debit of £9,486. £47,800 of debentures have been redeemed during year, reducing amount outstanding at end of year to £426,500. Additions to buildings, plant, etc., during the year amounted to £16,516, chiefly in respect of dwellings, sanitation work and plant, while deductions of £12,992 represents sales and amounts written off in respect of various assets which have become obsolete during year.

William Blythe and Co.—The report for the year 1930 states that the net profit, including income from investments, amounted to £25,834, against £33,364 last year, which, after reserving for taxation £4,380, leaves £21,454, to which is added balance brought forward £5,960, making £27,414. The directors recommend transfer to depreciation reserve £1,963, final dividend on ordinary at rate of 5 per cent. (subject to reduction of tax), making 8 per cent. for the year (10 per cent.), which will absorb £11,005, leaving balance to be carried forward of £6,146. The annual meeting will be held at 333, Royal Exchange, Manchester, on May 11, at 12 noon.

"Cosach" Arrangements

An extraordinary general meeting of the Aguas Blancas Nitrate Co. (1928), Ltd., was held on Friday, April 24, at River Plate House, Finsbury Circus, E.C., at which an agreement for the sale of the undertaking to the Compania de Salitre de Chile, now known as "Cosach," was approved without dissent. Mr. W. J. Welch, the chairman, who presided, said that the board had considered the plan from all angles, and, in view of the ever-increasing competition of synthetic production, had no hesitation in recommending its adoption. The terms were considerably better than those originally proposed by the Chilean Government, and compared very favourably with those offered to other properties.

Shareholders of the Angela Nitrate Co., Ltd., and Santa Catalina Nitrate Co., Ltd., have received circulars informing them that, following the passing of the resolutions at the meetings held on Thursday, April 23, the agreement relating to the sale of the companies' assets to Cosach has been formally adopted by the company.

Proceedings for the acquisition of the other companies which have indicated their intention of adhering to Cosach are being carried forward.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries:—

166. (*Water Softener*).—We have received an inquiry from abroad for the name and address of the manufacturers of "Timorit," a preparation for the softening of water.

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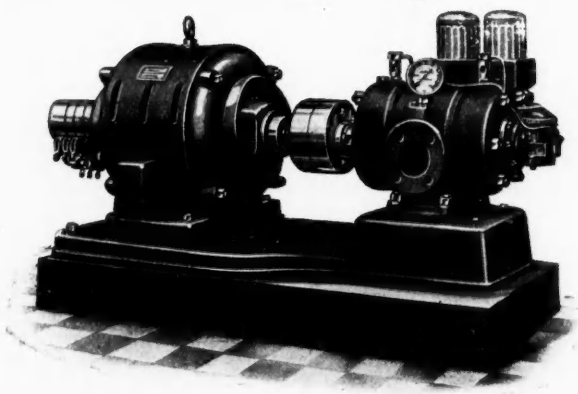

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Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

GRANCRETA CO., LTD., Leeds, chemical manure manufacturers. (M., 2/5/31.) Registered April 16, £300 debenture, to R. V. Harrison, Beresford, Harrogate Road, Yeadon; general charge. *£1,283. September 29, 1930.

PREMIER MILL CO. (GREAT HARWOOD), LTD. (M., 2/5/31.) Registered April 14, £1,500 debenture, to Sir W. Thom, Atholl House, Blackburn; general charge. *£23,345. May 15, 1930.

STEATITE AND PORCELAIN PRODUCTS, LTD., Stourport. (M., 2/5/31.) Registered April 15, debenture, to Barclays Bank, Ltd., securing all moneys due or to become due to the bank; general charge (subject, etc.). *£16,577. December 26, 1930.

Satisfactions

BRITISH ALUMINIUM CO., LTD., London, E.C. (M.S., 2/5/31.) Satisfaction registered April 16, £750,000, etc., registered October 22, 1910.

BRITISH FIBRO ASBESTOS PRODUCTS, LTD., London, S.E. (M.S., 2/5/31.) Satisfaction registered April 18, £16,000, registered April 16, 1923.

London Gazette, &c.

Company Winding Up

WAXED BAGS, LTD., Curtis Buildings, Abbey Road, Park Royal, London. (C.W.U., 2/5/31.) Winding-up order made April 20, 1931.

Companies Winding Up Voluntarily

AGUAS BLANCAS NITRATE CO. (1928), LTD. (C.W.U.V., 2/5/31.) By special resolution, April 24, 1931. J. Featherston, of River Place House, 10-11, Finsbury Circus, London, E.C.2, appointed liquidator.

ANGELA NITRATE CO., LTD. (C.W.U.V., 2/5/31.) By special resolution, April 23, 1931, with a view to carrying out of an agreement dated March 23, 1931, between the company and Senor Pablo Ramirez as trustee for Compania de Salitre de Chile. W. O. Mortimer Walton, of Finsbury House, Blomfield Street, London, E.C.2, appointed liquidator.

NEW PACCHA AND JAZPAMPA NITRATE CO., LTD. (C.W.U.V., 2/5/31.) By special resolution, April 23, 1931. Creditors' claims to liquidators, J. Rennie and E. T. Gatrell, 145, Dashwood House, Old Broad Street, London, by June 8, 1931.

ROSARIO NITRATE CO., LTD. (C.W.U.V., 2/5/31.) By special resolution, April 22, 1931. James Rennie and E. T. Gatrell, of 145, Dashwood House, Old Broad Street, London, E.G., appointed liquidators. Creditors' claims to liquidators by June 8, 1931.

SAN SEBASTIAN NITRATE CO., LTD. (C.W.U.V., 2/5/31.) By special resolution, April 23, 1931. Creditors' claims to James Rennie and E. T. Gatrell, liquidators of the company, 145, Dashwood House, Old Broad Street, London, E.C.2, by June 8, 1931.

SANTA RITA NITRATE CO., LTD. (C.W.U.V., 2/5/31.) By special resolution, April 24, 1931. W. Parker Rocke, F.C.A., of 3, Frederick's Place, Old Jewry, London, E.C.2, appointed liquidator.

SANTA CATALINA NITRATE CO., LTD. (C.W.U.V., 2/5/31.) By special resolution, April 23, 1931, with a view to carrying out of an agreement dated March 23, between the company and Senor Pablo Ramirez as trustee for Compania de Salitre de Chile. W. O. Mortimer Walton, of Finsbury House, Blomfield Street, London, E.C.2, appointed liquidator.

New Companies Registered

BAKORA, LTD. Registered April 24. Nominal capital, £500 in £1 shares. To acquire the business of manufacturing chemists at Batley, Yorks, and elsewhere, and also the registered trade mark "Bakora." A subscriber: Elizabeth Walton, 2, Upper Road, Batley Carr, Batley.

ELECTRO CHEMICAL DEVELOPMENT SYNDICATE, LTD. Registered April 23. Nominal capital, £2,000 in 1,900 ordinary shares of £1 each and 2,000 founders' shares of 1s. To acquire secret processes, formulæ and inventions for making metal alloys and bye-products in connection therewith, to adopt an agreement with A. E. Katz, to manufacture and deal in machinery and appliances, etc. Directors: G. P. Chamberlain, 14, Montague Avenue, Brockley, London, S.E.4; W. J. Willis, A. E. Katz.

Chemical Trade Inquiries

These inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

BELGIUM.—A firm established at Estinnes, is desirous of obtaining the distributing agency of British exporters of motor spirit, especially for the Hainaut district. (Ref. No. 373).

CANADA.—A firm of manufacturers' agents in Montreal desire to obtain British agencies for the sale of shellac and chemicals for the paint and varnish manufacturers in Canada. (Ref. No. 364).

POLAND.—An old-established firm of agents in the chemical and soap trades in Warsaw desire to obtain the representation of British manufacturers of cellulose lacquers, stearine, transparent mapping calophonium and shellac. (Ref. No. 353.)

SWEDEN.—An agent in Gothenburg wishes to represent British manufacturers or exporters of raw materials for the manufacture of paints, enamels, glass, porcelain, paper and for the steel industry (ferro-alloys). (Ref. No. 356.)

SYRIA (DAMASCUS).—A firm of commission agents desire to get in touch with British exporters of lubricating oils for industrial and agricultural machinery, packed in drums of 180–200 kg. for sale in bulk. (Ref. No. 386).

Tariff Changes

CHILE.—A translation of the relevant Decree relating to increases in the Chilean Customs Tariff imposed as from April 9, has now been made available by the Commercial Secretary to H.M. Embassy at Santiago. The rate of duty on chemical products not distinctly specified in the Tariff, has now been increased from 10 per cent. to 20 per cent. *ad valorem*.

POLAND.—The Commercial Secretary to H.M. Embassy at Warsaw reports that the period during which a refund will be allowed of the import duty paid on yarns, dyestuffs and chemicals used in the manufacture of textile goods, subsequently exported from Poland, has now been extended until December 31, 1931.

TURKEY.—Law No. 752, of February, 1926, which provided for the duty-free importation of petroleum, mazout and benzine for use in connection with agricultural tractors, machines, etc., and of drugs and chemical products used for combating plant and tree pests, animal parasites, and for the drying of grapes, has now been abrogated by Law No. 1,742, published March 8, and as from which date duty-free admission is restricted to certain specified chemical products for agricultural purposes, including potassium carbonate, sulphur, sulphate of copper, mastics employed in vineyards for the destruction of pests, and impure cyanide of potassium.